THE LANCET.

No 4844. LONDON, SATURDAY, JULY 1, 1916. Vol. CXCI.

S. M. S. MEDICAL LIBRARY, J. R. No... ... ...
Date... ... ...

CONTENTS.

The whole of the literary matter in THE LANCET is copyright

THE CAVENDISH LECTURE on the Fate of Patients who have had Stones Removed from the Kidney Delivered June 23rd 1916 by Sir JOHN ROLAND-SUTTON F.R C S Eng (*Illustrated*) 1
AN ADDRESS (Abstract of) on the Prevention and Treatment of Cholera. Delivered before a Medical Conference in Malta, by STAFFORD M. FOX, M.D Dub Major R.A.M.C —(*Illustrated*) 3

ORIGINAL ARTICLES
Remarks on the Cause and Nature of the Changes which Occur in Muscle after Nerve Section. By J N LANGLEY Sc.D F.R.S 6
The Diagnosis of Cancer of the Stomach By JAMES ALEXANDER LINDSAY M.D.R.U.I. F.R.C.P.Lond. 7
Peptone a Substitute for Peptone and a Standard Nutrient Medium for Bacteriological Purposes Report to the Medical Research Committee By SYDNEY W COLE, M A and M. OXSLOW —(*Illustrated*) 9
The Shockless Operation By P LOCKHART MUMMERY F.R.C.S Eng 12
Intestinal Toxins and the Circulation By D T BARRY F.R.C S M.D —(*Illustrated*) 14
Kala-azar in Soldiers Returning from Malta By GORDON R. WARD, M.D Lond. Captain R.A.M C (S.R) 16
Abdomino-perineal Resection of the Rectum by Coffey's Modification of the Two-stage Operation. By L. C PANTING, M.D B Ch.Oxon. &c..... .. 17
Annual Report for 1914 of the Registrar-General. By JOHN F. W TATHAM M.A. M.D F.R.C.P., D P H. &c.—II 30
A Portable Fracture Box for use in Field Ambulances and Field Hospitals By Sr J DUDLEY BUXTON M R.C S L.R.C P B S Lond. Captain R.A.M.C —(*Illustrated*) 32

CLINICAL NOTES
MEDICAL, SURGICAL OBSTETRICAL, AND THERAPEUTICAL
Asphyxia from Defective Shipboard Ventilation By G E BROOKE, L R.C P & S Ed. &c. 18
A Case of Advanced Intra abdominal Pregnancy By B R VICKERS M B B S Ld. 18

MEDICAL SOCIETIES
ROYAL SOCIETY OF MEDICINE: SECTION OF OBSTETRICS AND GYNÆCOLOGY:—Hæmatoma of the Abdominal Wall — Acute Hepatic Toxæmias Complicating Pregnancy and Labour 19

REVIEWS AND NOTICES OF BOOKS
Serums Vaccines and Toxins in Treatment and Diagnosis By W C Bosanquet, M.A M.D Oxon &c. and J W H Eyre M.D ,&c. Third edition 21
Monographs on Biochemistry: The Respiratory Exchange of Animals and Man By August Krogh Ph.D 21
A Contribution to a Knowledge of Canadian Ticks By Gordon Hewitt D Sc. 21
Sight-testing Made Easy By W Wright Hardwicke M.D &c 22
Hints on Refraction. By Subodh Kumar Ganguly M.B 22
Tuberculosis and the Working Man: An Appeal to Friendly Societies. By P C Varrier Jones, M.A.Cantab M R C S 22
Current German Medicine... .. 22

REPORTS AND ANALYTICAL RECORDS FROM THE LANCET LABORATORY
Oxydol Ointment.—Aspirin.—Solac —Tintara Wine 23

NEW INVENTIONS
Differential Stethoscopes — (*Illustrated*) 24

LEADING ARTICLES
MILITARY MEDICAL HONOUR SERVICE 25
ALIMENTARY REST IN DIABETES 25

ANNOTATIONS
Milk Problems 27
The Influence of Spinal Anæsthesia on Blood Pressure 27
The Carnegie United Kingdom Trust and Infant and Maternal Welfare 28
Empyema after Pneumonia. 28
The Insufflation of Sulphur in Throat Affections 29
The Metropolitan Water supply 29
Herpes Zoster and Varicella. .. 29

SPECIAL ARTICLES
Scotland 33
Ireland 33
United States of America.. .. 33
The Services.. 34

VITAL STATISTICS:
Health of English Towns .. 35
Health of Scotch Towns .. 35
Health of Irish Towns. .. 35

CORRESPONDENCE.
Women Medical Students at King's College London (Prof W D Halliburton) 36
The Infectious Condition of Patients Desquamating after Scarlet Fever (Dr Donald W C Hood).. 36
Fat headedness (Dr R. G Hebb) 36
The Effect of Ferrivine and Intramine on Syphilis (Lieut. Col L.W Harrison R.A.M.C Capt C H. Mills R A M C) 36
Pirate Doctors (Dr Robert R Rentoul) 36
Treatment of Typhus Fever by Thorough Ventilation (Dr R. O Moon) 42
Kafir Beer (Dr Wm Robertson) 42
The Destruction of Cockroaches (Dr G Burton Brown) 42

THE WAR
The Casualty List. 37
The Honours List... 37
Mentioned in Despatches 37
Deaths among the Sons of Medical Men 38
Auxiliary Royal Army Medical Corps Funds..... 38
Physical Treatment for Disabled Soldiers 38
Use of the Red Cross Emblem 38
The Children in Belgium 38
Y M C A. Concerts at the Front 38

OBITUARY OF THE WAR:
Henry John Sullings Kimbell, M R C S Eng Lieutenant R A M.C —(*With Portrait*) 38
Maurice Henry de Jersey Harper M.B B S Durh. Surgeon, R.N —(*With Portrait*) 37
Herbert Lyne Geoghegan M D B Ch Dub Fleet-Surgeon R.N —(*With Portrait*) 37

MEDICAL NEWS
Literary Intelligence 11
Royal Microscopical Society 26
Presentation to a Medical Officer 32
Order of the Excellent Crop 32
Society of Apothecaries of London: Pass list ... 39
Victoria University of Manchester: Pass-list 39
University of Durham: Faculty of Medicine: Degrees &c. conferred 39
A Proposed Presentation to Sir Leonard Rogers. 39
Higher Training of Midwives 39
The late Dr C Macgowan Kitching 39
Donations and Bequests 39

PARLIAMENTARY INTELLIGENCE
Notes on Current Topics 39
House of Commons 39

Appointments 41
Vacancies 42
Births Marriages and Deaths 42
Notes Short Comments and Answers to Correspondents 42
Medical Diary 43
Meteorological Readings.. ... 43
Books &c. received..... 44
Acknowledgment of Communications received 44

FOR INDEX TO ADVERTISEMENTS SEE PAGE 2

JOHN BALE, SONS & DANIELSSON, LTD.
NEW BOOKS

ANIMAL PARASITES OF MAN. The most Comprehensive Volume published on the Subject
By H B FANTHAM, M A Cantab, J W W STEPHENS D Cantab and F V THEOBALD, M A Cantab Royal 8vo cloth Pages xxxi., 423 Illus, weight 4½ lbs 45s net Postage, 9d inland, abroad, 3s to 6s 6d, according to destination

CHILD WELFARE ANNUAL. An Indispensable Book of Reference
Edited by T N KELYNACK, M D Cr 4to Pages 346 + xli In blue cloth, gilt lettered 7s 6d net Postage 6d

MAINTENANCE OF HEALTH IN THE TROPICS.
By W J SIMPSON, C M G, M D 2nd Edition, rewritten, cloth lettered Pages 174 + xii 3s 6d net Postage 4d

85, 87, 89, 91, GREAT TITCHFIELD STREET, OXFORD STREET, LONDON, W.

INDEX

MEDICAL AND OTHER BOOKS AND PUBLICATIONS

PAGE

ARNOLD:—
Sibley—Treatment of Disea es of the Skin Cover 1

BAILLIERE, TINDALL & COX:—
Rigg—Indigestion 4
Lockhart-Mummery—After Treatment of Operations Cover 1

BALE, SONS & DANIELSSON:—
Child Welfare Annual 1
Fantham Stephens & Theobald—Animal Parasites of Man 1
Moullin—When to Operate in Inflammation of the Appendix Cover 1
Simpson—Maintenance of Health in the Tropics 1

CHURCHILL, J & A.:—
Squire s Companion to the British Pharmacopœia Cover 1

FROWDE AND HODDER & STOUGHTON:—
Beesly and Johnston—Surgical Anatomy for Students &c. 3
Dupuy—The Stretcher Bearer 3
Groves—Gunshot Injuries of Bones 3
Harris—Nerve Injuries and Shock 3
Horder—Cerebro-Spinal Fever 3
Jones—Injuries of Joints 3
McCann—Cancer of Womb Cover 1
Mackenzie—Diagnosis and Treatment in Heart Affections 3
Morison and Richardson—Abdominal Injuries 3
Murphy—Wounds of the Thorax in War 3
Power—Wounds in War 3
Ramsay &c.—Injuries of the Eyes, Nose Throat, and Ears 3
Rawling—Surgery of the Head 3
Squire—Medical Hints 3
Stewart & Evans—Nerve Injuries 3

FROWDE, &c—(Continued)
Stewart & Evans—Nerve Injuries and their Treatment Cover 1

GRIFFIN & CO:—
Caird and Cathcart — Surgical Handbook .. 4

LEWIS & CO:—
Martindale and Westcott—The Extra Pharmacopœia 4
Moullin—Enlargement of Prostate Cover 1
Russ—A New Treatment for Gonorrhœa Cover 1

LONDON PUBLICITY CO:—
Reinhardt-Rutland—Faith, Medicine and the Mind Cover 1

MEDICAL PUBLISHING CO:—
Lane Sir A—Operative Treatment of Fractures Cover 1

MURRAY:—
Brunton, Sir L—Therapeutic[s of] the Circulation C[over]

NISBET & CO:—
Romer and Creasy—Bonese[tting] and the Treatment of Pa[inful] Joints (

WRIGHT & SONS (BRISTOL):—
Morison—An Introductio[n to] Surgery

MEDICAL LIBRARIES, &c
Behnke—Stammering, Lisp[ing], Cleft-Pa[la]te Speech
Ketley—Sta[m]mering
Matthews—[W]ood: Applica[tion of] Trusses to H[e]rnia
Williams & Co—Vitamines [their] Nature and [P]roperties

OFFICIAL AND GENERAL ANNOUNCEMENTS

ASSISTANCIES, MEDICAL 45, 46

ASYLUMS, HOMES, &c.:—
Abbotswood House, Cinderford 41
Ashwood House Kingswinford 39
Barnwood House Hospital 39
Bishopstone House Bedford 43
Brunton House, Lancaster 43
Buntingford House Retreat, Buntingford 40
Camberwell House Peckham road 40
Capel Lodge Retreat and Sanatorium near Folkestone 41
Cheadle Royal 39
Clarence Lodge Clapham Park 38
Colthurst House School Alderley Edge 43
Coppice, The, Nottingham 39
Dalrymple House Rickmansworth 41
Dartmoor Sanatorium 41
David Lewis Colony, Alderley Edge 43
Duff House Banff 42
Edgar Allen Institute Sheffield 38
General Manager Craven-street 43
Ghylwoods 41
Grove House, Church Stretton 39
Grove, The Catton Norwich 39
Haslemere Nursing Home 45
Haydock Lodge Newton le-Willows 40
Heigham Hall Norwich 39
Home for Epileptics Maghull 45
Invernith Sanatorium Collinsburgh 41
Littleton Hall, Brentwood 43
London Fever Hospital 39
Malling Place Kent 39
Melbourne House Leicester 41
Mendip Hills Sanatorium 41

ASYLUMS—(Continued)
Moat House Tamworth 39
Newmains Retreat Lanarkshire.. 40
Nordrach-on Dee Banchory 42
Northumberland House Finsbury Park 39
Northwoods House Winterbourne 40
No 381 L O., Strand 43
No 412 L.O., Strand 43
Peckham House 40
Pendyffryn Hall Sanatorium Nordrach in Wales 41
Plympton House Plympton 39
Portsmouth Corporation Mental Hospital 43
St Andrew s Hospital Dollis Hill 43
St Andrew's Hospital Northampton 39
St Luke s Hospital for Mental Diseases 38
Shaftesbury House Formby-by the-Sea 40
Springfield House Private Asylum Bedford 38
Stretton House Church Stretton 39
The Grange, near Rotherham 39
Vale of Clwyd Sanatorium 42
Vicarage Buxton 43
Warneford Asylum, Oxford 38
Weedon House, Buxton 43
Woodfield St eatham 43
Wye House Buxton 39

HEALTH RESORTS BATHS, &c.:—
Droitwich Brine Baths 43
Harrogate .. 42
Peebles Hotel Hydro 43
Smedley's Matlock 43
Woodhall Spa 42

HOMES WANTED:—
No 914 L.O., Strand 48

HOSPITAL, INFIRMARY SANATORIUM, &c VACANCIES 43-45

HOUSE & ESTATE AGENTS:—
CONSULTING-ROOMS:—
Rutley Son & Vine, George street, Euston road 47

LIFE & FIRE ASSURANCES &c:—
Prudential 43

MEDICAL ACCOUNTANTS &c —
Turner 47

MEDICAL AGENTS:—
Fieldhall Limited 41
Manchester Clerical &c. Association 47
Medical Agency 47
Moore & Co 45
Needes J C 47
Peacock & Hadley 47
Turner 47

MEDICAL SCHOOLS:—
(LONDON)
Guy's Hospital 35
London School of Clinical Med 35
St Mary's Hospital Medical School 36
West London Post Graduate College 35

NURSES' ASSOCIATIONS:—
Co-operation of Temperance Male and Female Nurses 37

NURSES ASSOC (Continued)
General Nursing As[sociation]
Hospital for Sick C[hildren]
London Nurses As[sociation]
London Temperan[ce] N[urses Co]operation
Male Nurses Tempe[rance] [Co-opera]tion
Mental Nurses Asso[ciation]
Mental Nurses Co-o[peration]
New Mental Nurses [illegible] Co-o[peration]
Nurses Association
Nurses Co-operation
Registered Nurses S[oc]iety
St John s House
St Luke s Hospital
Temperance Association of [illegible] Nurses Ltd
The Retreat, York

OFFICIAL NOTICES:—
City of London Lying-in Hosp[ital]
College of Preceptors
London School of Tropical M[edi]cine
Queen Charlotte s Lying in H[ospital]
University of Birmingham
University of Cambridge
York road General Lying in H[ospital]

PARTNERSHIPS & PRACTI[CES]

RAILWAY & STEAMSHIP C[O]
New Zealand Shipping Co.

SCHOOLS, PREPARATORY
Paton, Cannon-street

TUTORS & LECTURERS:—
Schnelle—Stammering

TRADE AND MISCELLANEOUS ADVERTISEMENTS

AMBULANCES:—
St John Ambulance — Invalid Carriages 5

ANATOMICAL MECHANICIANS:—
Grossmith s Artificial Eyes Legs, &c. 5

BOTTLE MERCHANTS:—
Isaacs 23

CARRIAGES MOTORS
Armstrong—Liveries
Offord & Sons—Ford Cars
St Martin s Motor Works—and Accessories

CHEMISTS & DRUGGISTS:—
Allen & Hanburys—
Bynogen
Allenburys Castor Oil
Anglo-French Drug Co —
Hypodermic Preparations
Electric Colloids 21
Chemical Colloids 21
Battley & Watts—
Battley's Liquors 28
British Oxygen Co —Oxygen 32
Browning & Co —Bemprolin 31
Bullock & Co —
Pepsina Porci 27
Acid Glycerine of Pepsine 32
Burroughs Wellcome & Co —
Kepler Malt Extract with Hæmoglobin &c. 21
Carnrick & Co —
Dry Peptonoids 18
Liquid Peptonoids 19
Christy & Co —Ergoapiol 33
Clay Paget & Co.—Glycolactophos 32
Fassett & Johnson—
Emol Keleet 10
Fellows Syrup of Hypophosphites 22
Gale & Co —Compound Syrup of the Glycerophosphates &c. 30
[Ha]ppells—
[I]odonal, Jubol, Globeol, &c. 13

CHEMISTS—(Continued)
H K. Mulford Company—
Curative Serums and Bacterins Cover iii
Hogg & Son—
Protein Nerve Food 35
Huggins & Co —
Ozone Paper for Asthma 33
Humphrey Taylor & Co —
Junora 23
Maltine Manufacturing Co —
Malto-Yerbine 19
Maltine 19
Mertens—
Nourry's Iodinated Wine 10
Cacodylate of Sodium 10
En sol 10
Parke, Davis & Co —
Emulsion of Petroleum with Proposote 14
Raimes & Co.—Slinger's Nutrient Suppositories 23
[S]quire & Sons—
Elixir Colloid 18
Elixir Thyroidei &c. 18
[W]yeth & Sons—Emetine 32
[Wilc]ox, Jozeau & Co —
[illegible]ol 31
[illegible] Francis Butler & [Thom]son—Macker's Glyceroles 27
[illegible]ann & Co — 23
Zi[illegible]
[illegible] ol

DISINFECTANTS:—
Boots Pure Drug Co
Chloramine-T 43
Chloramine T Gauze 43
Condy's Fluid 5
Jeyes' Sanitary Compounds Co — Cover ii
Jeyes Fluid &c. 25
Lysol, Ltd —Lysol 1
Quibell Bros.—Kerol

FOODS:—
Allen & Hanburys—
Allenburys Foods 16
Aylesbury Dairy Co —
Humanized Milk 30

FOODS—(Continued)
Bakers Flour Supply Co —Flour 47
Benger's Food 12
Blatchley's Diabetic Preparations 28
British Drug Houses—
Herogen .. 27
Cadbury s Cocoa 25
Fairchild Bros & Foster—
Peptogenic Powder 20
Hewlett & Son—
Virophos 11
Hooker's Malted Milk Cover ii
Savory & Moore—
Infants Food 23
Southall Bros & Barclay—
Vitafer 33
Thomson & Co —
Pure China Tea 47
Valentine s Meat-Juice Cover iv
Van Abbott & Sons—
Foods for Diabetes and Obesity 22
Williams & Co —
Vitamogen 15

FURNITURE &c —
Carter—Furniture for Invalids and Hospital Supplies .. 8

MED & SURG APPLIANCES:—
Bailey & Son—
Operation Tables and Sterilizers 25
Invalid Furniture 25
Davis—Lukens Sterile Catgut 6
Down Bros.—Wallace-Maybury Extension Splint 21
Ernst—Surgical and Orthopædic Appliance, &c. 5
Hearson & Co.—
Hearson s Specialities 9
Leslies Ltd.—
Leslies Zincoplast & Cover ii
Millikin & Lawley—
Osteology &c. 35
Robinson & Sons—
Gamgee Tissue 25
St Dalmas & Co —
Leicester Varicose Leg Bandage 8
Salmon Ody Ltd —Trusses 35
Timpson & Co —Ca[illegible] 35

MINERAL WATERS &c —
Del Mar—Villacabras
Del Mar—Vittel
Freeman—Glass Lemon
Vichy-Célestins

STATIONERY &c —
Mabie Todd & Co —
Swan Fount Pen

TAILORS BOOTMAKERS &
Dowie & Marshall—
Hygienic Bootmakers
Harry Hall—Service Dress

VACCINE LYMPH:—
Chaumier's Calf Lymph
Heinemann—Reimann s Aseptic Calf Lymph
Jenner Institute for Calf Ly[mph]
Renner's Calf Lymph E ta[blish]ment

WINES BEER, SPIRITS, &
Ackerman Laurance—
Brut Royal
Humphrey Taylor & Co —
"G B." Diabetes Whisky

X RAY &c APPARATUS
Dean & Co —
Th [illegible]
Medical Supply Association
Grevillite Improved D[illegible] Apparatus
Siemens Brothers & Co —
X Ray Outfits
Electro-Medical Appara[tus]

MISCELLANEOUS:—
Bates—Rubber Gloves [illegible] &c
Grieve—Instruction in C[illegible]tion, Marketing &c.
No 913, L.O., Stra[nd]—[illegible]
No 917 L.O., Strand—
X Ray &c Appara[tus]
Nurse—Qualified Nurse

THE LANCET.

o 4845 LONDON, SATURDAY, JULY 8, 1916 Vol. CXCI.

CONTENTS.

The whole of the literary matter in THE LANCET is copyright

STERIAN LECTURE on e Development of the ructures Associated with e Roof of the Primitive outh. Delivered before the oyal College of Surgeons of ngland by J BERNET BAZEB, F R C S Eng., imterian Professor Professor of Anatomy in the iversity of London Lecmer in the Medical School t St. Mary's Hospital, &c.—*Illustrated*) 45

ORIGINAL ARTICLES

Investigation into Some of he Effects of the State of utrition of the Mother uring Pregnancy and Labour n the Condition of the Child t Birth and for First Few Days of Life By G F DARWALL SMITH, M.A. B.M., B Ch.Oxon F.R.C.S.E. 54

Report on the Casualties rom the Jutland Coast Action eceived at Royal Naval Hos pital, South Queensferry By W M. ASH, M.B., B S.Lond. Temporary Surgeon Royal Navy and C P G WAKELEY, M.R.C.S L.R.C P Lond. Temporary Surgeon Royal Navy —(*Illustrated*) 56

ome of the Uses and Abuses of Massage. By E BELLIS CLAYTON M.B B C Cantab., Captain, R.A.M C (T) 58

n Experience of Galyl at Royal Naval Hospital Chatham By SHELDON F DUDLEY M.B., B S.Lond., &c., Staff Surgeon Royal Navy —(*Illustrated*) 59

Two Cases of Penetrating Wounds of the Abdomen Involving the Inferior Vena Cava. By D C TAYLOR F.R.C S., Temp Captain R.A.M.C. 60

On the Use of Tuberculin in General Practice By J LINTON BOGLE, M D Edin..... 61

The Use of Ammonia in the Chlorination of Water By JOSEPH RACE F I C Captain Canadian Army Hydrological Corps... 71

REVIEWS AND NOTICES OF BOOKS

Burdett's Hospitals and Charities 1916. By Sir Henry Burdett, K.C.B., K.C V O ... 63
Nouveau Traité de Chirurgie. Publié sous la direction de A. Le Dentu et Pierre Delbet 63
The Origin and Nature of the Emotions: Miscellaneous Papers. By George W Crile, M.D 63
Quarterly Journal of Experimental Physiology Vol. IX 64
The Military Surgeon 64
The Journal of Bacteriology... 64

LEADING ARTICLES

THE STATE PROMOTION OF SCIENTIFIC RESEARCH..... 65
THE PRACTICES OF ABSENTEE MEDICAL OFFICERS 66

ANNOTATIONS

The Significance of the Amino-acids 67
The Trypanosomes of Sleeping Sickness 67
The Relative Proportion of Boys and Girls Born during the War 68
Hemiglossitis in Measles 63
The Importation of German Synthetic Drugs into America 69
The Welsh National School of Medicine 69
Luargol or 102" 69
The Vomiting Sickness" of Jamaica 70
The Royal Society of Medicine: Section of Otology..... 70

SPECIAL ARTICLES

Paris 72
Epsom College 72
The Services..... 73

VITAL STATISTICS:

Health of English Towns 74
Health of Scotch Towns ... 74
Health of Irish Towns... 74
Vital Statistics of London during May 1916... 74
Analysis of Sickness and Mortality Statistics in London during May 1916 75

CORRESPONDENCE.

The Registered Practitioner and the Uncertified Maternity Nurse (Mr G W Duncan) ... 76
The Causation and Cure of Certain Lunacies (Dr Edwin Goodall) 77
The Needs of the Royal Medical Benevolent Fund (Sir John Tweedy and others) 77
The Medical Directory (Messrs. J & A. Churchill) 78
Women Students at the London Hospitals (Sir John F H Broadbent) 78
Spinal Anæsthesia, with Reference to its Use in the Trendelenburg Position (Mr H. M Page) 78
Alimentary Rest in Diabetes (Dr O Leyton)..... 78
The Stretching of Scar Tissues in Mouth Lesions (Mr W Warwick James) 78
Enteric Fevers in the Tropics: A Point in Nomenclature (Lieut. Col. J H. Tull Walsh I M.S (retd.)) 78
The Private Removal of Sick or Wounded from Abroad..... 86
Necessitous Ladies Holiday Fund (Miss Constance Beerbohm)..... 86
The Destruction of Cockroaches 86

OBITUARY

Henry Benjamin Hinton M R C S: A Centenarian Doctor 76

THE WAR

The Casualty List 79
Deaths among the Sons of Medical Men 79
Mentioned in Despatches..... 79
The British Interned Prisoners of War at Château d Oex 80
Tests for the Detection of Malingering among Soldiers. 80
Physical Clinique for Wounded and Disabled Soldiers 81
Books for British Prisoners Abroad 81
Ambulance Gifts to the Red Cross 82
Dental Motor Ambulances 82
Marylebone Medical War Committee 82
Grants for Belgian Prisoners.... 82

OBITUARY OF THE WAR

Sidney Edward Punch, L.R.C P.& S Irel., Surgeon, R.N —(*With Portrait*)..... 79
Hugh Leigh Norris, M.R C S., L R.C P.Lond., Fleet-Surgeon, R.N —(*With Portrait*) 79
Edmund Hughes Flanigan, M.B B Ch. R.U I. Lieut., R.A.M.C —(*With Portrait*) 80

MEDICAL NEWS

Edinburgh Faculty of Medicine The Admission of Women 83
Central Midwives Board for Scotland 56
A Free Convalescent Home for Delicate Children..... 56
Clerical Medical and General Life Assurance Society..... 62
Metropolitan Hospital Sunday Fund 70
Donations and Bequests 76
Queen's University Belfast..... 76
The Carnegie Trust in Ireland. 82
University of Manchester: Pass-list 82
Royal College of Surgeons of Edinburgh Pass list..... 82
University of Durham: Faculty of Medicine: Pass-list 82
The Oxford Ophthalmological Congress 83
West London Medico-Chirurgical Society 83
Literary Intelligence 83
London Insurance Committee and Illegible Prescriptions.... 83
South London Hospital for Women 83

PARLIAMENTARY INTELLIGENCE.

House of Commons 83

INDEX.

VOL. I 1916 ... . ill. xxiv
TITLE PAGE.
(*See Notice on p 87*)

Appointments 85
Vacancies 85
Births Marriages and Deaths.. 85
Notes Short Comments, and Answers to Correspondents ... 85
Meteorological Readings..... 85
Medical Diary 87
Books &c. received 87
Acknowledgment of Communications received 83

FOR INDEX TO ADVERTISEMENTS SEE PAGE 2

JUST PUBLISHED

Animal Parasites of Man.

The most Comprehensive Volume ever Published on the Subject.

By H B FANTHAM, M A Cantab, J W W STEPHENS, M D Cantab, and F V THEOBALD, M A. Cantab

Royal 8vo Cloth Pages 932 423 Illustrations Weight 4½ lbs Price 45s. net
Postage, 9d inland abroad, 2s to 6s 6d, according to destination

JOHN BALE, SONS & DANIELSSON, LTD.,
83, 85, 87, 89, 91, GREAT TITCHFIELD STREET, OXFORD STREET, LONDON, W

INDEX

MEDICAL AND OTHER BOOKS AND PUBLICATIONS

PAGE

BAILLIERE, TINDALL & COX:—
Bigg—Indigestion 5
Clarke E.—Errors of Accommodation and Refraction of the Eye Cover 1
Freyer—Enlargement of the Prostate Cover 1
Freyer—Surgical Diseases of the Urinary Organs Cover 1
Hayes—Intensive Treatment of Syphilis and Locomotor Ataxia by Aachen Methods Cover 1
Lockhart Mummery—After Treatment of Operations Cover 1
Lockhart-Mummery—Diseases of the Colon and their Surgical Treatment Cover 1

BALE, SONS & DANIELSSON:—
Fantham Stephens & Theobald—Animal Parasites of Man 1
Moullin—When to Operate in Inflammation of the Appendix Cover 1

PAGE

CHURCHILL, J. & A.:—
Hare—Alcoholism: Its Clinical Aspects and Treatment Cover 1
Hull—Surgery in War Cover 1
Lelean—Sanitation in War Cover 1
Pollard & Davies Minor Surgery Cover 1
Rowlands & Turner's Operations Cover 1
Squire's Companion to the British Pharmacopœia Cover 1
Taylor's Operative Surgery Cover 1
Thorne Bexly—Schott Methods of Treatment of Chronic Diseases of the Heart 4
Warren's Text-Book of Surgery Cover 1

FROWDE AND HODDER & STOUGHTON:—
Waring—Surgical Diseases of the Gall Bladder &c. 5
Waring—Manual of Operative Surgery 5

KIMPTON:—
Roth—Notes on Military Orthopædics Cover 1

PAGE

LEWIS & CO:—
Buxton—Anæsthetics their Uses and Administration 3
Carter—Elements of Practical Medicine 3
Delorme—War Surgery 3
Gould—Practitioner's Medical Dictionary 3
Gould—A Pocket Medical Dictionary 3
Gould & Pyle's Pocket Cyclopædia of Medicine and Surgery 3
Jones—Ionic Medication The Principles of the Method &c 3
Kettle—Pathology of Tumours 3
Lewers—Diseases of Women 3
Medical Books 4
Moullin—Enlargement of Prostate Cover 1
Russ—A New Treatment for Gonorrhœa Cover 1
Scientific Books 4
Shuttleworth and Potts—Mentally Deficient Children 3

LONGMANS GREEN & CO:—
Watson Williams—Rhinology Cover 1

PAGE

MACMILLAN & CO:—
Tubby—Deformities Cover

MEDICAL PUBLISHING CO:—
Lane Sir A.—Operative Treatment of Fractures Cover 1

MURRAY:—
Brunton, Sir L.—Therapeutics of the Circulation

NISBET & CO:—
Romer and Creasy—Bonesetting and the Treatment of Painful Joints Cover

WRIGHT & SONS (Bristol):—
Medical Annual, 1916

MEDICAL LIBRARIES, &c.:—
Behnke—Stammering Lisping & Cleft Palate Speech
Ketley—Stammering
Lewis & Co.'s Medical and Scientific Circulating Library
Matthews—Wood Application of Trusses to Hernia

OFFICIAL AND GENERAL ANNOUNCEMENTS

ASSISTANCIES MEDICAL 45

ASYLUMS, HOMES, &c.:—
Abbotswood House, Cinderford 40
Ashwood House Kingswinford 42
Barnwood House Hospital 38
Bishopstone House Bedford 42
Brunton House Lancaster 42
Camberwell House, Peckham road 40
Capel Lodge Retreat and Sanatorium near Folkestone 40
Cheadle Royal 38
Clarence Lodge, Clapham Park 37
Colthurst House School, Alderley Edge 42
Coppice, The Nottingham 39
Dalrymple House Rickmansworth 40
David Lewis Colony Alderley Edge 42
Duff House, Banff 41
Edgar Allen Institute, Sheffield 37
General Manager Craven-street 45
Ghylwoods 40
Grove House, Church Stretton 38
Grove The Catton, Norwich 38
Haslemere Nursing Home 45
Haydock Lodge Newton-le-Willows 39
Heigham Hall Norwich 38
Home for Epileptics Moghull 42
Inverurith Sanatorium, Collinsburgh 40
Littleton Hall, Brentwood 45
London Fever Hospital 38
Malling Place Kent 38
Melbourne House Leicester 40
Mendip Hills Sanatorium 40
Moat House Tamworth 38
Mundesley Sanatorium Norfolk 41
Newmains Retreat, Lanarkshire 40
New Saughton Hall, Polton, Midlothian 35
Nordrach-on-Dee Banchory 41

ASYLUMS—(Continued).
Northumberland House Finsbury Park 39
Northwoods House Winterbourne 39
No. 381 L.O., Strand 43
No. 412, L.O., Strand 42
No. 937 L.O., Strand 43
Otto House West Kensington 42
Peckham House 39
Pendyffryn Hall Sanatorium, Nordrach in Wales 41
Plympton House Plympton 38
Portsmouth Corporation Mental Hospital 42
Royal Earlswood Institution for Mental Defectives 39
St. Andrew's Hospital Dollis Hill 42
St. Andrew's Hospital, Northampton 38
St. George's Retreat, Burgess Hill 42
St. Luke's Hospital for Mental Diseases 37
Springfield House Private Asylum, Bedford 42
Stretton House Church Stretton 38
The Grange, near Rotherham 38
Vale of Clwyd Sanatorium 41
Warneford Asylum, Oxford 42
Westcroft, Ilkley 43
Woodfield, St. Leatham 43
Wye House Buxton 38

FINANCIAL &c.:—
Equitable Reversionary Interest Society 43

HEALTH RESORTS BATHS &c.:—
Alexandra Therapeutic Institute 42
Droitwich Brine Baths 42
Smedley's, Matlock 42

HOMES WANTED:—
T. L. O. Serle street 43

HOSPITAL, INFIRMARY SANATORIUM, &c. VACANCIES 43-45

HOUSE & ESTATE AGENTS:—
Bedford & Co., Wigmore-street 48
Elliott Son & Boyton Vere-street 48
Hill, Asnatria 48
King & King Portsmouth 48
Knight Frank & Rutley Hanover square 48
Ley Clark, Wimpole-street 48

LIFE & FIRE ASSURANCES &c.:—
General Life Assurance Co 43
Medical Sickness and Accident Society 25
National Provident Institution 35
Prudential 43

MEDICAL ACCOUNTANTS, &c.:—
Turner 48

MEDICAL AGENTS:—
Fieldhall Limited 47
Manchester Clerical, &c., Association 47
Medical Agency 47
Needes J. C. 47
Peacock & Hadley 47
Turner 47

MEDICAL SCHOOLS:—
(LONDON)
London School of Clinical Medicine 35
St. Mary's Hospital Medical School 35
West London Post Graduate College 35

NURSES ASSOCIATIONS:—
Army and Navy Male Nurses Co-operation
Co-operation of Temperance Male and Female Nurses
General Nursing Association
Hospital for Sick Children
London Nurses Association
London Temperance Nurses Co-operation
Male Nurses Temperance Co-operation
Mental Nurses Association
Mental Nurses Co-operation
Nurses Association
Nurses Co-operation
St. Bartholomew's Hosp. Trained Nurses Institution
St. John's House
St. Luke's Hospital
Temperance Association of Male Nurses Ltd.
The Retreat York

OFFICIAL NOTICES:—
City of London Lying-in Hospital
Epsom College
London School of Tropical Medicine
Queen Charlotte's Lying-in Hosp.

PARTNERSHIPS & PRACTICES

RAILWAY & STEAMSHIP CO'S.:—
New Zealand Shipping Co.

SCHOOLS PREPARATORY &c.:—
Paton, Cannon-street

TUTORS & LECTURERS:—
Behnke
Med. Correspondence College
Wormouth

TRADE AND MISCELLANEOUS ADVERTISEMENTS

AMBULANCES:—
St. John Ambulance—Invalid Carriages 47

BOTTLE MERCHANTS:—
Isaacs 7

CARRIAGES MOTORS, &c.:—
Armstrong—Liveries 47
St. Martin's Motor Works—Tyres and Accessories 47

CHEMISTS & DRUGGISTS:—
Allen & Hanburys—Chrismol and its Preparations 19
Anglo-French Drug Co.—Novocaine-Surrocaine 28
Antikamnia Chemical Co.—Antikamnia Tablets 48
Antiphlogistine 20
Battley & Watts—Liquor Opii Sedativus 10
Bristol Myers Co.—Sal Hepatica 31
British Drug Houses Ltd.—Intramine and Ferriviro 18
British Oxygen Co.—Oxygen 30
Bullock & Co.—Pepsina Porci &c. Cover II
Burroughs Wellcome & Co.—Kharsivan Brand Salvarsan 23
Carnrick & Co.—Dry Peptonoids &c. 21
Christy & Co.—Glyco-Thymoline 12
Ergoapiol 31
Gale & Co.—Compound Syrup of the Glycerophosphates, &c. 25
Heppells—Urodonal
Hill & Son—Mist. Pepsinæ Co. Bismutho 30

CHEMISTS—(Continued)
Kerfoot & Co.—Salaspin 15
Lambert Pharmacal Co.—Listerine 23
Macfarlan & Co.—Chloroform Ether &c. 20
Martindale—Rectified Spirit for Medical Purposes 22
Newbery & Sons—Pulvis Jacobi Ver 34
New York Pharmaceutical Co.—Hayden's Viburnum Compound 10
Parke Davis & Co.—Corpora Lutea 15
Pearson & Co.—Lactagol 9
Raimes & Co.—Slinger's Nutrient Suppositories 34
Saccharin Corporation, Ltd.—Phytin, &c. 17
Smith & Co.—Hall's Wine
S. P. Charges Co.—Sulphaqua 31
Wilcox, Jozeau & Co.—Kola Astier 31

DISINFECTANTS:—
Allen & Hanburys—Dioxogen 27
Boo's Pure Drug Co.—Chloramine-T 7
Condy's Fluid

FOODS:—
Benger's Food 15
Blatchley's Diabetic Preparations 33
Bolsallier—Delecta Chocolates 34
Brand & Co.—Essence of Chicken 35
British Milk Products Co.—Sanaphos 11
Cadbury's Cocoa 25

FOODS—(Continued).
Callard & Co.—Diabetic Foods 33
Fry's Malted Cocoa Cover III
Hommel's Hæmatogen 43
Hooker's Malted Milk 20
Horlick's Malted Milk Co.—Malted Milk Tablets 28
Manhu Food Co.—Manhu Diabetic Foods 34
Pan Yan Pickle 33
Thomson & Co.—Pure China Tea 47
Valentine's Meat-Juice Cover II
Van Abbott & Sons—Gluten Flour 34
Virol 25
Wander Ltd.—Ovaltine 14

FURNITURE, &c.:—
Carter—Furniture for Invalids and Hospital Supplies 8

MED. & SURG. APPLIANCES:—
Bailey & Son—Patent Abdominal Belts 8
Davis—Lukens Sterile Catgut 8
Down Bros.—Differential Stethoscope &c. Cover IV
Gimber & Son—Excelsior Crepe Bandages 7
Hogg & Son—Steam Vaporisers 7
Lesliey, Ltd.—Leslie's Zincoplas, &c. Cover II
Millikin & Lawley—Osteology &c. Cover III
Robinson & Sons—Gamgee Tissue 7
Salmon Oily Ltd.—Trusses 33
Timpson & Co.—Catgut 7
Wormull—Aluminium Splinting Cover III
Zeal—Pepello Clinical Thermometer 34

MINERAL WATERS &c.:—
Del Mar—Villacabras
Del Mar—Vittel

OPTICIANS:—
Bausch & Lomb Optical Co.—Microscope

TAILORS BOOTMAKERS &c.:—
Burberrys—The Burberry
Harry Hall—Service Dress

TOBACCO CIGARS &c.:—
Player & Sons—Perfectos Cigarettes

TYPEWRITING &c.:—
Yost Typewriter Co.—Yost

VACCINE LYMPH:—
Chaumier's Calf Lymph
Jenner Institute for Calf Lymph

X RAY &c. APPARATUS:—
Medical Supply Association—The Galvanosol

MISCELLANEOUS:—
B., Bowsom & Co.—Chauffeur
Churcher—Secretary
Grieve—Instruction in Cookery
Heron, Force & Dehn—British Patent No. 1
No. 612, L.O., Strand—Universal Apparatus, &c.
No. 993, L.O., Strand—Secretary Attendant
Sister K.—Nurse
Secretary—Operation Table
Walton—Motor Driving

THE LANC

No 4846 LONDON, SATURDAY, JULY 15, 1916 l. CXCI

CONTENTS.

The whole of the literary matter in THE LANCET is copyri

AN INQUIRY into the Natural History of Septic Wounds. By KENNETH GOADBY M.B.C.S. L.R.C.P. Lond. D.P.H. Cantab. Bacteriological Specialist Royal Herbert Hospital, Woolwich. Lecturer on Bacteriology National Dental Hospital &c. (A Report in three Sections to the Medical Research Committee.)—(WITH ILLUSTRATIVE PLATE.) ... 89

ORIGINAL ARTICLES

Digitalis in Aortic Incompetence. By SEYMOUR TAYLOR, M.D. Aberd., F.R.C.P. Lond. &c. ... 96

Abdominal Pregnancy probably Primary. By FREDERICK J. MCCANN, M.D. Edin. F.R.C.S.Eng.—(*Illustrated*) ... 98

Indications and Contra-indications in the Pneumothorax Treatment of Pulmonary Tubercle. By CLIVE RIVIERE, M.D. Lond., F.R.C.P. Lond. ... 101

A Case of Oblique Hemianopia from Wound of Optic Chiasma. By PURVES STEWART, C.B., M.D. Edin., F.R.C.P. Lond., Colonel, Army Medical Service and A. D. GRIFFITH, B.S. Lond., F.R.C.S. Eng., Captain Royal Army Medical Corps (T.).—(*Illustrated*) ... 104

Early Ether Analgesia. By D. P. D. WILKIE, M.D., M.Ch.Edin., F.R.C.S. Edin., Acting Staff Surgeon, R.N.V.R.—(*Illustrated*) ... 106

CLINICAL NOTES:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL

Two Cases of Thoracic Aneurysm. By GEORGE J. CONFORD, M.D. Oxon. ... 107

A Case of Perforated Typhoid Ulcer: Operation; Acute Obstruction: Operation: Recovery. By F. M. NEILD, M.B., B.S. Lond. ... 107

REVIEWS AND NOTICES OF BOOKS

Operative Midwifery. By J. M. Munro Kerr, M.D., C.M. Glasg. Third Edition. ... 108

Text-book on Nervous Diseases. By Professor H. Oppenheim. Authorised English edition by C. W. Burr, B.S., M.D. ... 108

Veterinary Therapeutics. By R. Wallis Hoare, F.R.C.V.S. Third edition. ... 108

A New Treatment for Gonorrhœa. By Charles Russ, M.B. ... 109

Pye's Surgical Handicraft. Edited and largely rewritten by W. H. Clayton Greene, B.A., M.B., &c. Seventh edition. ... 109

The Drink Problem of To-day in its Medico-Psychological Aspects. Edited by T. N. Kelynack, M.D. Vict. ... 109

Practical Cystoscopy and the Diagnosis of Surgical Diseases of the Kidney and Urinary Bladder. By Paul M. Pilcher, A.M., M.D. Second edition. ... 109

Emergency Surgery. By John W. Sluss, A.M., M.D. Third edition. ... 109

Physiological Abstracts ... 109

NEW INVENTIONS

A New Mechanical Stage.—(*Illustrated*) ... 110

LEADING ARTICLES

THE FOOD OF THE PRISONERS AT RUHLEBEN CAMP ... 111

THE FACTORY DEPARTMENT IN TIME OF WAR ... 112

ANNOTATIONS

The Public Health Condition of the Country ... 113

Stock Mixtures under the Insurance Acts ... 113

The Life-cycle of the Schistosome Worms ... 113

The Sale of Medicated Wines ... 114

Venereal Disease in Sweden ... 114

The Audibility of Gun-firing ... 115

Industrial Aniline Poisoning ... 115

Medical Women's Federation ... 116

Tetragenus Septicæmia ... 116

VITAL STATISTICS:

Health of English Towns ... 119

Health of Scotch Towns ... 120

Health of Irish Towns ... 120

SPECIAL ARTICLES

A Monthly Record of Atmospheric Pollution ... 110

Canada ... 117

Notes from India ... 117

Asylum Reports ... 118

The Services ... 119

CORRESPONDENCE.

The Nature of the Changes which Occur in Muscle after Nerve-Section (Dr. F. Hernaman-Johnson) ... 120

The Prevention of Bilharzia Infection (Dr. F. G. Cawston) 121

The Effect of Ferrivine and Intramine on Syphilis (Mr. J. E. R. McDonagh) ... 121

Scarlet Fever Carriers (Sir John F. H. Broadbent) ... 121

The Infectious Condition of Patients Desquamating after Scarlet Fever (Dr. S. Davies) 122

Fat-headedness (Sir H. Bryan Donkin) ... 122

Women Students at the London Hospitals (Professor W. D. Halliburton) ... 122

The Shockless Operation (Dr. W. Manson Fergusson) ... 122

Atropa Belladonna (Mr. J. Beetham Wilson) ... 123

"Pirate" Doctors (Mr. Percival Turner) ... 123

THE WAR

The Casualty List ... 123

The Naval Battle of Jutland May 31st, 1916 ... 123

Huddersfield War Hospital Magazine ... 123

Deaths among the Sons of Medical Men ... 124

The German Official Casualty List ... 125

OBITUARY OF THE WAR:

John Gladstone Mackenzie, M.B. Ch.B. Glasg. Captain A.A.M.C.—(*With Portrait*) 124

Douglas Waterston, B.A., M.D., C.M. McGill, Captain C.A.M.C.—(*With Portrait*) 124

Frederick Albert Capps, L.R.C.P. Edin., Fleet-Surgeon, R.N.—(*With Portrait*) 124

OBITUARY

Paul H. Römer, M.D. Marburg 127

PARLIAMENTARY INTELLIGENCE.

Notes on Current Topics ... 127

House of Commons ... 127

Appointments ... 128

Vacancies ... 129

Births, Marriages, and Deaths ... 130

Books &c. received ... 130

Meteorological Readings ... 130

Notes, Short Comments, and Answers to Correspondents ... 130

Medical Diary ... 131

Acknowledgment of Communications received ... 132

FOR INDEX TO ADVERTISEMENTS SEE PAGE 2.

The most Comprehensive Volume ever Published on the Subject.

THE ANIMAL PARASITES OF MAN.

By H. B. FANTHAM, M.A. Cantab., J. W. W. STEPHENS, M.D. Cantab., and F. V. THEOBALD, M.A. Cantab.

PARTLY ADAPTED FROM DR. MAX BRAUN'S "Die Tierischen Parasiten des Menschen" (4th Edition, 1908) and an Appendix by DR. OTTO SEIFERT

Royal 8vo. Cloth. Pages 932. 423 Illustrations. Weight 4½ lbs. Price 45s. net.
Postage, 9d. inland, abroad, 2s. to 6s. 6d., according to destination

JOHN BALE, SONS & DANIELSSON, LTD.,
83, 85, 87, 89, 91, GREAT TITCHFIELD STREET, OXFORD STREET, LONDON, W.

INDEX

MEDICAL AND OTHER BOOKS AND PUBLICATIONS

BAILLIERE, TINDALL & COX:—
Bigg—Indigestion Cover 1
Clarke, E.—Auto-Nasheim Treatment of Eye Diseases of the Heart and Circulation Cover 1
Freyer—Epidemic in England Cover 1
Freyer—SONS & DANIELSSON—Urinary Stephens & Theobald—Hayes—Animal Parasites of Man 1
Syphilis—When to Operate in Inflammation of the Appendix
Lockhart Cover 1
Lockhart—Squint its Causes Pathology and Treatment Cover 1
the C
Treat
ELL & CO:—
Walker—Surgical Diseases and Injuries of Genito Urinary Organs Cover 1
BALE, Fanth
Anti
JRCHILL J & A.:—
Moullquire's Companion to the British Pharmacopœia 4

PAGE
CHURCHILL—(Continued)
Squire's Companion to the British Pharmacopœia 1914 Cover 1

FROWDE AND HODDER & STOUGHTON:—
Berkeley and Bonney—Gynæcology in General Practice 5
Berkeley and Bonney—Guide to Gynæcology in General Practice Cover 1
Horder—Cerebro-Spinal Fever 5
Kelson—Diseases of the Throat, Nose and Ear 5
Keogh, Sir A., &c.—Manual of Venereal Diseases 5
Mackenzie—Diagnosis and Treatment in Heart Affections 5
Practitioner's Encyclopedia of Medical Treatment 5
Rawling—Surgery of the Skull and Brain 5

FROWDE &c.—(Continued)
Science and Practice of Dental Surgery 5
Stewart & Evans—Nerve Injuries and their Treatment 5

HILTON & CO:—
Ghosh & Das—Hygiene and Public Health 4

LEWIS & CO:—
Moullin—Enlargement of Prostate Cover 1
Russ—A New Treatment for Gonorrhœa Cover 1

MEDICAL PUBLISHING CO:—
Lane Sir A.—Operative Treatment of Fractures Cover 1

MURRAY:—
Brunton, Sir L.—Therapeutics of the Circulation 4

NISBET & CO.—
Romer and Creasy—Bonesetting and the Treatment of Painful Joints Cover 1

SAUNDERS COMPANY:—
Cullen—Diseases of the Umbilicus 3
Graves—Gynecology 3
Graves Gynecology Cover 1

WRIGHT & SONS (Bristol):—
Bourne—Synopsis of Midwifery Cover 1

MEDICAL LIBRARIES &c.—
Behnke—Stammering Lisping & Cleft Palate Speech Cover 1
Ketley—Stammering Cover 1
Matthews—Wood Application of Trusses to Hernia 1

OFFICIAL AND GENERAL ANNOUNCEMENTS

ASSISTANCIES MEDICAL 45
ASSI
ASY
ASYLUMS HOMES, &c.—
Abbotswood House, Cinderford 41
Ashwood House Kingswinford 38
Barnwood House Hospital 39
Bishopstone House Bedford 43
Brunton House, Lancaster 45
Buntingford House Retreat, Buntingford 41
Camberwell House Peckham road 40
Cheadle Royal 39
Clarence Lodge Clapham Park 38
Colthurst House School, Alderley Edge 43
Coppice, The Nottingham 39
Dalrymple House, Rickmansworth 40
Dartmoor Sanatorium 42
David Lewis Colony Alderley Edge 43
Duff House Banff 42
Edgar Allen Institute, Sheffield 38
General Manager Craven-street 43
Ghylwoods 40
Grove House, Church Stretton 39
Grove The, Catton Norwich 39
Haslemere Nursing Home 43
Haydock Lodge Newton-le Willows 40
Heigham Hall Norwich 39
Home for Epileptics Maghull 43
Invernith Sanatorium, Colinsburgh 41
Littleton Hall, Brentwood 43
London Fever Hospital 39
Malling Place Kent 39
Melbourne House Leicester 41
Mondip Hills Sanatorium 41
Moat House Tamworth 39
Mundesley Sanatorium, Norfolk 41
Newmains Retreat Lanarkshire 40

ASYLUMS—(Continued)
Northumberland House Finsbury Park 38
Northwoods House Winterbourne 40
No 381, L.O., Strand 43
No 412, L.O. Strand 43
No 937 L.O., Strand 43
Peckham House 40
Pendyffryn Hall Sanatorium, Nordrach in Wales 41
Plympton House Plympton 39
Portsmouth Corporation Mental Hospital 43
St. Andrew's Hospital, Dollis Hill 43
St. Andrew's Hospital North ampton 39
St. Luke's Hospital for Mental Diseases 38
Shaftesbury House Formby-by the-Sea 40
Springfield House Private Asylum Bedford 38
Stretton House Church Stretton 39
The Grange near Rotherham 39
Vale of Clwyd Sanatorium 41
Warneford Asylum Oxford 38
Westcroft, Ilkley 43
Woodfield Streatham 43
Wye House Buxton 39

FINANCIAL, &c.—
Equitable Reversionary Interest Society 43

HEALTH RESORTS BATHS, &c.:—
Droitwich Brine Baths 43
Harrogate 42
Peebles Hotel Hydro 43
Smedley's Matlock 43
Woodhall Spa 42

HOSPITAL, INFIRMARY SANATORIUM, &c VACANCIES 43-45

HOUSE & ESTATE AGENTS—
Hill Aspatria 46
Knight Frank & Rutley Hanover-square 46
T. O., Fleet-street 46

LIFE & FIRE ASSURANCES &c:—
Prudential 43

MASSAGE—
W. Cricklewood 46
C. Martin South Kensington 46

MEDICAL ACCOUNTANTS, &c:—
Turner 46

MEDICAL AGENTS—
Fieldhall Limited 47
Manchester Clerical &c., Association 47
Medical Agency 47
Neede J C 47
Peacock & Hadley 47
Turner 47

MEDICAL SCHOOLS:—
(LONDON)
London School of Clinical Medicine 38
St Mary's Hospital Medical School 38
West London Post Graduate College 38

NURSES ASSOCIATIONS:—
Co-operation of Temperance Male and Female Nurses 37
General Nursing Association 37
Hospital for Sick Children 33
London Nurses Association 37
London Temperance Nurses Co-operation 37
Male Nurses Temperance Co operation 35
Mental Nurses Association 37
Mental Nurses Co-operation 33
New Mental Nurses Co-operation 33
Nurses Association 37
Nurses Co-operation 33
Registered Nurses Society 33
St. John's House 33
St Luke's Hospital 37
Temperance Association of Male Nurses, Ltd. 37
The Retreat York 37

OFFICIAL NOTICES:—
City of London Lying in Hospital 35
London School of Tropical Medicine 35
Queen Charlotte's Lying-in Hosp 35
University of Birmingham 3
York road General Lying in Hos. 35

PARTNERSHIPS & PRACTICES 45

RAILWAY & STEAMSHIP CO'S.:—
New Zealand Shipping Co. 45

SCHOOLS PREPARATORY &c —
Paton Cannon-street 35

TUTORS & LECTURERS —
Schnelle—Stammering Cover 1
Weymouth 3

TRADE AND MISCELLANEOUS ADVERTISEMENTS

AMBULANCES:—
St. John Ambulance—Invalid Carriages 6

BOTTLE MERCHANTS:—
Isaacs 7

CARRIAGES, MOTORS, &c:—
Armstrong—Liveries 6
Offord & Sons—Ford Cars 6
St Martin's Motor Works—Tyres and Accessories 6

CHEMISTS & DRUGGISTS:—
Allen & Hanburys—
Allenburys Castor Oil 30
Bynin Amara 17
Anglo-French Drug Co—Galyl 23
Battley & Watts—
Battley's Liquors 10
British Oxygen Co—Oxygen 30
Browning & Co—Semprolin 31
Bullock & Co.—Pepsina Porci &c 30
Burroughs Wellcome & Co.—
Tabloid Effervescent Products 21
Carnrick & Co—Dry Peptonoids 19
Liquid Peptonoids 19
Christy & Co.—Linguaplol 2
Clay Paget & Co—Glycolactophos Cover II
Evans Sons Lescher & Webb—
Capsul OL Santal Flav 14
Fairchild Bros & Foster—
Lepsencla 15
Fellows Syrup of Hypophosphites Cover III
Gale & Co—Compound Syrup of the Glycerophosphates, &c 31
Heppells—Grodonal, Jubol &c. 12
Hewlett & Son—Liq santal Flav c. Buchu et Cubeba 32
Hogg & Son—Protein Nerve Food 34
Hawson & Company—
Santrocyl Gelatine Capsules 22

CHEMISTS—(Continued)
Mertens—Electrargol 10
Humphrey Taylor & Co—Junors 23
Parke, Davis & Co—Pituitrin 29
Raimes & Co.—Slinger's Nutrient Suppositories 34
Richards & Sons—Lactopeptine 48
Saccharin Corporation, Ltd.—
Novocain &c 11
Tidman's Sea Salt 30
Wilcox, Jozeau & Co—
Nativelle's Crystallised Digitaline 32
Arhéol 32
Willows, Francis Butler & Thompson—
Physiologically Tested Drugs 43
Zimmermann & Co—Subitol 28

DISINFECTANTS —
Boots Pure Drug Co—
Chloramine-T 12
Chloramine T Gauze 12
Condy's Fluid 34
Evan Sons Lescher & Webb—
Lysol Evans 14
Lysol, Ltd.—Lysol 25
Quibell Bros.—Kerol 31
Sanitas Co—
Sanitas Disinfectants 24

FOODS:—
Allen & Hanburys—
Allenburys Foods 16
Aylesbury Dairy Co—
Humanized Milk 31
Benger's Food Cover IV
Blatchley's Diabetic Preparations 33
Chymol Company—Chymol 27
Hooker's Malted Milk 33
Savory & Moore—Peptonised Milk Cover III

FOODS—(Continued)
Thomson & Co—Pure China Tea 45
Valentine's Meat Juice Cover II
Van Abbott & Sons—
Foods for Diabetes and Obesity 33
Van Houten's Cocoa 23
Williams & Co—
Vitamogen 13

FURNITURE, &c:—
Carter—Furniture for Invalids and Hospital Supplies 22

MED & SURG APPLIANCES—
Bailey & Son—
Burlington Bel 25
Davis—Lukens Sterile Catgut 7
Down Bros—Differential Stethoscope &c. 8
Martin Isle—
Hypodermic Syringes 9
Milnkin & Lawley—
Osteology &c. 35
Robinson & Sons—Gauze Tissue 34
Salmon Ody Ltd—Trusses 6
Timpson & Co—Catgut 55

MINERAL WATERS &c —
Del Mar—Villacarras 33
Del Mar—Vittel 34
Freeman—Cl s Lemon 44
Iris & Co—Tonalka 44
Vichy-Célestins

STOVES, &c —
British Commercial Gas Association—Gas Fire &c 2

TAILORS BOOTMAKERS &c —
Dowie & Marshall—
Hygienic Boot makers Cover II
Evans & Co—Service Uniforms 35
Harry Hall—Service Dress 6

TOBACCO CIGARS, &c:—
Ardath Tobacco Co Ltd—
State Express Cigarettes 7

TYPEWRITING &c.—
Taylor's Typewriters 7

VACCINE LYMPH—
Chaumier's Calf Lymph 33
Evans Sons Lescher & Webb—
Bacterial Vaccines 14
Jenner Institute for Calf Lymph 3
Renner's Calf Lymph Establishment 35

WINES, BEER, SPIRITS &c.
Humphrey Taylor & Co—
"G H" Diabetes Whisky 23
Brown Gore & Co—
Gaitter's Liqueur Brandy 43

X RAY &c., APPARATUS —
Medical Supply Association—
Gravillite Improved Dark Room Appliances 25

MISCELLANEOUS—
A. Hall L[illegible] 43
Ba[illegible] 6
Pastilles Hrad[illegible]—Te[illegible] 44
Fa[illegible] Hrad[illegible]—Cro[illegible] 6
Dr B[illegible] 45
Dr C[illegible]—Lady D[illegible] 45
Gr[illegible]—Ins[illegible] 45
Ho[illegible] 41
Br[illegible] 12 41
M[illegible] 6
No[illegible] 45

THE LANCET.

No 4847 LONDON, SATURDAY, JULY 22, 1916 Vol. CXCI

CONTENTS.

The whole of the literary matter in THE LANCET is copyright

AN INQUIRY into the Cardiac Disabilities of Soldiers on Active Service. By JOHN PARKINSON M.D Lond. M.R.C.P.Lond. Chief Assistant to the Cardiac Department of the London Hospital Temporary Captain Royal Army Medical Corps, attached Hampstead Military Hospital for Heart Cases .. 133

ORIGINAL ARTICLES

An Enteric-like Fever in the Anglo-Egyptian Sudan. By ALBERT J CHALMERS M.D Vict., F R.C S Eng D P.H. Director Wellcome Tropical Research Laboratories and NORMAN MACDONALD Junior Bacteriological Laboratory Assistant, Wellcome Tropical Research Laboratories Khartoum.—(*Illustrated*) 139

The Gangrene of War: Gaseous Cellulitis or Emphysematous Gangrene By ALFRED J HULL, F.R.C S Eng Major Royal Army Medical Corps —(*Illustrated*)..... 144

Cardiac Symptoms following Dysentery among Soldiers. By E B GUNSON M.D Edin. M.R C.P Lond. Captain Royal Army Medical Corps attached Hampstead Military Hospital..... 146

The Radical Treatment of Gastric Ulcer By JOSEPH CUNNING M.B., B S Melb F.R.C.S Eng Surgeon to the Royal Free Hospital &c. late Surgeon to the Victoria Hospital for Children and to the Cancer Hospital..... 147

The Treatment of Hæmorrhoids by Interstitial Injection By T. BIRD M.R.C.S M.A. Oxon. late Anæsthetist to King Edward VII Hospital and Consulting Anæsthetist to Guy's Hospital and to the East London Hospital for Children.—(*Illustrated*) 149

An Unusual Case of Albuminuria. By O LETTON M.D D.Sc.Lond, F R C P Lond Physician to the London Hospital..... 150

REVIEWS AND NOTICES OF BOOKS

Abnormal Children (Nervous Mischievous Precocious and Backward) By Bernard Hollander M.D 151

Manual of Vital Function testing Methods and their Interpretation By Wilfred M Barton M.D 151

London County Council Annual Report, 1914 Vol II: Asylums and Mental Deficiency 151

A Text-book of Nervous Diseases for Students and Practising Physicians By Robert Bing Only authorized translation by Charles L. Allen M D .. 152

The After-treatment of Operations: A Manual for Practitioners and House Surgeons By P Lockhart-Mummery F R.C S Eng B.A. M.B B C Cantab Fourth edition 152

Studies in Blood-Pressure Physiological and Clinical By George Oliver M D Lond. F R.C.P Third edition .. 152

LEADING ARTICLES.

THE PREVENTION AND TREATMENT OF VENEREAL DISEASES: THE INTERVENTION OF THE STATE 153

AORTIC INCOMPETENCE. 154

ANNOTATIONS

The Supply of Petrol to Medical Practitioners..... 155

The Metropolitan Water-supply 155

Diarrhœa and Enteritis in Relation to Privy Middens.... 156

India's Vital Statistics 156

Renal Glycosuria 156

Spontaneous Rupture of the Malarial Spleen 157

Royal Medical Benevolent Fund: An Emergency Appeal 157

VITAL STATISTICS:

Health of English Towns 160

Health of Scotch Towns.. .. 160

Health of Irish Towns..... 160

SPECIAL ARTICLES

Royal College of Surgeons of England: Meeting of Council 157

The Services.... 158

OBITUARY

Elie Metchnikoff Nobel-Laureate Sub-director of the Pasteur Institute in Paris —(*With Portrait*).... 159

CORRESPONDENCE.

The Nature of the Changes which Occur in Muscle after Nerve Section (Prof J N Langley) 161

The Relief of Distress in the Medical Profession Arising out of the War (Dr Samuel West) 161

The Odour of Paint as a Cause of Plumbism (Mr Henley H Moyle) 161

Mary Murdoch Memorial Loan Fund (Hon. Mrs Franklin) 161

Medical Women's Federation (Dr Jane Walker)..... .. 162

The Treatment of Osteo-arthritis by Continuous Counter irritation (Mr W J Midelton).. 162

Obliterative Arteritis and Lead Poisoning (Dr Walter Timme) 162

Tuberculosis and Squint (Mr W O Rivers) 162

Fat-headedness (Dr R G Hebb) 162

The Question of Private Operations on Soldiers 162

Deadly Nightshade (Dr George Foy)..... 171

THE WAR

The Casualty List..... 163

Deaths among the Sons of Medical Men 163

Mentioned in Despatches.... .. 163

The Central Medical War Committee 164

Scottish Medical Service Emergency Committee..... 164

The Royal Army Medical Corps and the Great Advance.. 164

The Practices of Absentee Medical Officers..... 166

Arrangements for Arrival of the Wounded in Manchester 167

Freemasons War Hospital..... 167

Voluntary Aid Detachments.. 167

OBITUARY OF THE WAR:

Walter Seymour Armstrong M.R.C S Eng Captain, R.A.M.C —(*With Portrait*). 165

Kenneth Harrison Alloa Keilie M.A. M.B B C Camb, M.R.C P, Captain R.A.M.C —(*With Portrait*) 165

George Harry Melville Dunlop M.D, F.R.C.P Edin Major R.A.M.C.— (*With Portrait*)..... ... 165

MEDICAL NEWS

Medicinal and Economic Plants 168

Poor-law Medical Officers' Association of England and Wales 168

Department of Household and Social Science King's College (University of London)..... 168

Donations and Bequests..... 168

The Conservation of Child Life 168

Traffic in Narcotic Drugs... .. 168

The Anglo-Belgian Hospital Calais 168

Lord Kitchener National Memorial Fund..... 168

University of London: Pass-list 167

Examining Board in England by the Royal Colleges of Physicians of London and Surgeons of England: Pass-list... 167

University of Glasgow: Pass-list 167

Royal Faculty of Physicians and Surgeons of Glasgow and Royal Colleges of Physicians and Surgeons of Edinburgh Pass list... 168

University of Manchester: Pass-list 168

University College London.. 168

University of St. Andrews: Licence in Dental Surgery.. 168

A Midwives Bill for Ireland..... 168

Urgent Surgical Maternity Cases 168

PARLIAMENTARY INTELLIGENCE.

House of Commons 168

Appointments 170

Vacancies 170

Births, Marriages, and Deaths 170

Books &c., received.. 170

Notes Short Comments and Answers to Correspondents.. 171

Medical Diary 172

Meteorological Readings.. 172

Acknowledgment of Communications received 172

FOR INDEX TO ADVERTISEMENTS SEE PAGE 2.

The most Comprehensive Volume ever Published on the Subject.

THE ANIMAL PARASITES OF MAN

By H B FANTHAM, M.A Cantab, J W W STEPHENS M D Cantab, and F V THEOBALD, M A Cantab

PARTLY ADAPTED FROM DR MAX BRAUN'S 'Die Tierischen Parasiten des Menschen (4th Edition, 1908) and an Appendix by DR. OTTO SEIFERT

Royal 8vo Cloth Pages 992 423 Illustrations Weight 4½ lbs Price 45s. net Postage, 9d inland abroad, 2s to 6s 6d, according to destination

JOHN BALE, SONS & DANIELSSON, LTD.,

83, 85, 87, 89, 91, GREAT TITCHFIELD STREET, OXFORD STREET, LONDON, W.

INDEX

MEDICAL AND OTHER BOOKS AND PUBLICATIONS

PAGE

ARNOLD—
Sibley—Diseases of Skin Cover 1

BAILLIERE TINDALL & COX—
Bigg—Indigestion 4
Freyer—Enlargement of the Prostate Cover 1
Freyer—Surgical Diseases of the Urinary Organs Cover 1
Gardner—Manual of Surgical Anæsthesia Cover 1
Lockhart-Mummery—Diseases of the Colon Cover 1

BALE, SONS & DANIELSSON—
Fantham Stephens & Theobald—The Animal Parasites of Man 1
Moullin—When to Operate in Inflammation of the Appendix Cover 1

CHURCHILL J & A.—
Hare—Alcoholism Cover 1
Hull—Surgery in War Cover 1
Lelean—Sanitation in War Cover 1
Pollard & Davies Minor Surgery Cover 1

PAGE

CHURCHILL—(Continued)
Rowlands & Turner's Operations Cover 1
Taylor's Operative Surgery Cover 1
Thorne Bezly—Schott Methods of Treatment of Chronic Diseases of the Heart 4
Warren's Text Book of Surgery Cover 1

FROWDE AND HODDER & STOUGHTON—
Waring—Surgical Diseases of the Gall Bladder &c. 4
Waring—Manual of Operative Surgery 4

GRIFFIN & CO—
Brooke—Tropical Medicine &c 5
Caird and Cathcart—Surgical Handbook 5
Horsley, Sir V.—Structure and Functions of the Brain &c. 5

KIMPTON—
Roth—Military Orthopædics Cover

PAGE

LEWIS & CO—
Binnie—Operative Surgery 22
Brockbank—Heart Disease 22
Burnham—Hæmocytes & Hæmic Infections 23
Extra Pharmacopœia Cover 1
Lewis's Medical Ledger 23
Mavill—Notes on Galvanism and Faradism 23
Martindale and Westcott—The Extra Pharmacopœia 23
Moullin—Enlargement of Prostate Cover 1
Osler Sir William—Aequanimitas 23
Russ—A New Treatment for Gonorrhœa Cover 1
Stitt—Diagnostics and Treatment of Tropical Diseases 23

LONGMANS, GREEN & CO—
Gray—Anatomy 5
Schäfer Sir E. A.—Histology 5

MEDICAL PUBLISHING CO—
Lane Sir A.—Operative Treatment of Fractures Cover 1

PAGE

MURRAY—
Brunton, Sir L.—Therapeutics of the Circulation 6

NISBET & CO—
Romer and Creasy—Bonesetting and the Treatment of Painful Joints Cover 1

SAUNDERS COMPANY—
Medical Clinics of Chicago Cover 1
Medical Clinics of Chicago 5

WRIGHT & SONS (Bristol)—
Index of Treatment 6

MEDICAL LIBRARIES &c—
Behnke—Stammering Lisping & Cleft Palate Speech 5
Kelley—Stammering 5
Kimpton—Brain Wanted Cover 1
Matthews—Wood Application of Trusses to Hernia 5
Scholl Mfg Co.—Scientific Correction for Ailments of the Feet 37

OFFICIAL AND GENERAL ANNOUNCEMENTS

ASSISTANCIES MEDICAL 49 50

ASYLUMS, HOMES, &c—
Abbotswood House Cinderford 44
Ashwood House Kingswinford 48
Barnwood House Hospital 42
Bishopstone House Bedford 46
Brunton House, Lancaster 47
Camberwell House Peckham road 43
Cheadle Royal 42
Clarence Lodge, Clapham Park 46
Colthurst House School Alderley Edge 41
Coppice, The, Nottingham 42
Dalrymple House, Rickmansworth 44
David Lewis Colony Alderley Edge 41
Duff House Banff 45
Edgar Allen Institute Sheffield 41
General Manager Craven-street 41
Ghylwoods 43
Grove House, Church Stretton 42
Grove The, Catton Norwich 42
Haslemere Nursing Home 47
Haydock Lodge Newton le Willows 43
Heigham Hall Norwich 42
House for Epileptics, Maghull 41
Invernith Sanatorium, Collinsburgh 43
Littleton Hall, Brentwood 47
London Fever Hospital 42
Malling Place Kent 42
Melbourne House Leicester 45
Mendip Hills Sanatorium 42
Moat House, Tamworth 43
Mundesley Sanatorium Norfolk 44
Newmains Retreat, Lanarkshire 44
New Saughton Hall Polton, Midlothian 43
Nordrach-on Dee Banchory 45

ASYLUMS—(Continued)
Northumberland House Plusbury Park 43
Northwoods House Winterbourne 43
No 381, L.O. Strand 47
No 412, L.O., Strand 47
No 957 L.O., Strand 47
Otto House West Kensington 48
Peckham House 44
Pendyffryn Hall Sanatorium Nordrach in Wales 45
Plympton House Plympton 42
Portsmouth Corporation Mental Hospital 47
Royal Earlswood Institution for Mental Defectives 45
St. Andrew's Hospital Dollis Hill 47
St Andrew's Hospital Northampton 42
St George's Retreat, Burgess Hill 47
St. Luke's Hospital for Mental Diseases 48
Springfield House Private Asylum, Bedford 48
Stretton House Church Stretton 42
The Grange near Rotherham 42
Vale of Clwyd Sanatorium 45
Warneford Asylum, Oxford 46
Westcroft, Ilkley 47
Wooddeld, Streatham 47
Wye House Buxton 42

FINANCIAL, &c.—
Equitable Reversionary Interest Society 47

HEALTH RESORTS BATHS, &c—
Alexandra Therapeutic Institute 45
Droitwich Brine Baths 45
Smedley's Matlock 46
Torquay 45

HOSPITAL, INFIRMARY SANATORIUM, &c VACANCIES 47-49

HOUSE & ESTATE AGENTS—
Bedford & Co., Wigmore-street 51
Elliott Son & Boyton, Vere-street 51
Knight Frank & Rutley Hanover square 51
Loy Clark, Wimpole-street 51
T. C., Fleet-street 51

LIFE & FIRE ASSURANCES &c—
General Life Assurance Co. 47
National Provident Institution 47
Prudential 47

MEDICAL ACCOUNTANTS &c—
Turner 50

MEDICAL AGENTS—
Fieldhall Limited 51
Manchester Clerical &c Association 51
Medical Agency 51
Needes J. C. 51
Peacock & Hadley 51
Turner 51

MEDICAL SCHOOLS—
(LONDON)
Charing Cross Hospital Medical School 53
London School of Clinical Medicine 53
St. Mary's Hospital Medical School 53
West London Post Graduate College 53
(PROVINCIAL, &c.)
University of Sheffield 53

NURSES ASSOCIATIONS—
Army and Navy Male Nurses Co-operation 41
Co-operation of Temperance Male and Female Nurses 43
General Nursing Association 43
Hospital for Sick Children 41
London Nurses Association 41
London Temperance Nurses Co-operation 43
Male Nurses Temperance Co-operation 41
Mental Nurses Association 43
Mental Nurses Co-operation 41
Nurses Association 43
Nurses Co-operation 41
St John's House 41
St Luke's Hospital 43
Temperance Association of Male Nurse Ltd 43
The Retreat, York 41

OFFICIAL NOTICES—
City of London Lying-in Hospital 53
Guy's Hospital 53
London School of Tropical Medicine 53
Queen Charlotte's Lying in Hosp 53
Royal (Dick) Veterinary College Edinburgh 53
University of Birmingham 53

PARTNERSHIPS & PRACTICES 53

RAILWAY & STEAMSHIP CO'S.—
New Zealand Shipping Co 37

SCHOOLS PREPARATORY &c—
Paton Cannon-street 53

TUTORS & LECTURERS—
Med. Correspondence College 6
Weymouth 37

TRADE AND MISCELLANEOUS ADVERTISEMENTS

AMBULANCES—
St. John Ambulance—Invalid Carriages 6

BOTTLE MERCHANTS—
Isaacs 6

CARRIAGES, MOTORS, &c.—
Armstrong—Liveries 6
St Martin's Motor Works—Tyres and Accessories 6

CHEMISTS & DRUGGISTS—
Allen & Hanburys—
Argein Kavol Cystazol 19
Byno Cascada 20
Byno Lecithin &c. 21
Anglo-American Pharmaceutical Co., Ltd.—Huxley's Compound Syrup of the Acid Glycerophosphates 29
Peptenzyme 34
Anglo-French Drug Co—
Iodargol 27
Urasemine 27
Antikamnia Chemical Co—
Antikamnia Tablets 10
Antiphlogistine 14
Battley & Watts—
Liquor Opii Sedativus 32
Bristol Myers Co.—
Sal Hepatica 35
British Drug Houses Ltd.—
Intramine 1
Ferrivine 1
British Oxygen Co.—
Oxygen Cover ii
Bullock & Co—
Pepsina Porci 31
Acid Glycerine of Lactine 34
Burroughs Wellcome & Co—
Hypoloid Brand Product 25

CHEMISTS—(Continued)
Carnrick & Co—
Dry Peptonoids 23
Liquid Peptonoids 23
Christy & Co—
Glyco-Thymoline 18
Ergoapiol 35
Cook & Co—
Cofecta Lozenges Cover ii
Crookes Laboratories—
Collosol Cover iv
Fletcher Fletcher & Co—
Vibrona 24
Gale & Co.—Compound Syrup of the Glycerophosphates &c. 35
Heppells—Urodonal 17
Hewlett & Son—
Mist. Hepatica Conc. Cover iii
Howards Sodil Bicarb. 34
Lambert Pharmacal Co—
Listerine 10
Newbery & Sons—
Pulvis Jacobi Ver 35
New York Pharmaceutical Co—
Hayden's Viburnum Compound 8
Parke Davis & Co.—
Proto II 15
Price's Patent Candle Co., Ltd.—
Price's Night Lights &c 30
Reimes & Co.—Slinger's Nutrient Suppositories 33
Smith & Co—Hall's Wine 32
S. P. Charles Co—
Sniphagua 33
Wilcox Jordan & Co.—
Arhéol 33

DISINFECTANTS—
Boots Pure Drug Co—
Chloramine-T —
Chloramine T Gauze 32
Condy's Fluid 33
Jeyes' Sanitary Compounds Co—
Jeyes' Fluid &c 9

FOODS—
Benger's Food 18
Blatchley's Diabetic Preparations Cover iii
Boisellier—Delicata Chocolates 32
Bovinine Co—Bovinine 9
Brand & Co—
Meat Juice 31
Callard & Co.—Diabetic Foods 32
Fry's Malted Cocoa Cover iii
Hommel's Hematogen 31
Hooker's Malted Milk 31
Horlick's Malted Milk Co—
Malted Milk Tablets 32
Manna Food Co.—
Manna Diabetic Foods 3
Pan Yan Pickle 3
Southall Bros & Barclay—
Vitafer 11
Thomson & Co—Pure China Tea 1
Valentine Meat-Juice 3
Van Abbott & Sons—Gluten Flour 4
Wander Ltd.—Ovaltine 15

FURNITURE, &c—
Carter—Furniture for Invalids and Hospital Supplies 8

MED & SURG APPLIANCES—
Baller & Son—
Surgeons Midwifery Cases Consulting Room Couches & 25
Davis—Lukens Sterile Catgut 8
Down Bros—Apparatus for Saline Infusion 7
Leslie L. L.—
Leslies Zinoplas & Cure 11
Millikin & Lawler—
Oculists &c. 6
Robinson & Sons—Camera Tissue 6
Salmon Ody Ltd—Trusses 8
Scholl Mfg Co—
Bunion Appliances 37

MED APPLIANCES—(Continued)
Timpson & Co—Catgut 33
Zeal—Repello Clinical Thermometer 8

MINERAL WATERS &c—
Del Mar—Vichy Water 34
Del Mar—Vittel 35
Hong & Son—
Aerated Lime-Water 32

STATIONERY &c—
Mabie Todd & Co—
Swan Fount Pen 37

TAILORS BOOTMAKERS &c.—
Burberrys—
The Burberry 7
Burberry Service Dress 7
Evans & Co.—Service Uniforms 6
Harry Hall—Service Dress 6

TOBACCO CIGARS &c.—
Player & Sons—
Perfection Cigarettes 22

TYPEWRITING &c—
Yost Typewriter Co—Yost 37

VACCINE LYMPH—
Cavanier's Calf Lymph 5
Jenner Institute for Calf Lymph 5

X RAY & APPARATUS—
Medical Supply Association—
The Galvanos 5

MISCELLANEOUS—
Cream—Instantaneous Cocoa 5
Nestlé and Anglo-Swiss Condensed Milk 31
Nurse L.O., Strand—
Secretary L.O., Strand 22

THE LANCET.

No 4846 LONDON, SATURDAY, JULY 29, 1916 Vol. CX

CONTENTS.

The whole of the literary matter in THE LANCET is copyright

OBSERVATIONS on Fifty Laparotomies Performed for Gunshot Wounds of the Abdomen. By G H. STEVENSON M.B., J J M. SHAW M.D., Captains R.A.M C (S.R.) and C MACKENZIE, M.D., F.R.C S., Captain, R.A.M C (T C) —(*Illustrated*) 173

ORIGINAL ARTICLES

On the Advantage of Using a Broth Containing Trypsin in Making Blood Cultures. By S R. DOUGLAS, M.R.C S L.R.C.P Lond., Captain I.M.S (retd.) and L. COLEBROOK, M B. B.S Lond., Captain, R.A.M.C (T.) 180

Treatment of Carriers of Amœbic Dysentery Note on the Use of the Double Iodide of Emetine and Bismuth. By H. H. DALE, M.D., F.R.S 183

A Note on the Necessity for Prolonged Treatment in Cases of Infantile Paralysis. By FRANCIS HERNAMAN JOHNSON M.D Aberd Captain (Temp.) R.A.M.C —(*Illustrated*) 185

Six Cases of Wounds of the Buttock with Perforation of the Intestine. By R. B. BLAIR, M.B. Edin. F R.C S. Edin. Captain, R.A.M.C 186

A Serious Defect in Some of the Registered Hospitals for the Insane. By HENRY RAYNER, M.D.Aberd..... 188

CLINICAL NOTES

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A Case of Double Cervical Rib. By HAROLD F RENTON, M.D., B.S.Lond., M.R.C.S L.R.C P Lond.—(*Illustrated*) 187

A Case of Omental Fibroma. By B MANSEL SIMPSON M.D Cantab M.R.C S..... 188

Case of Four Days' Strangulated Hernia in a Child 15 Days Old Recovery By IDA M. GUILLAUME, L.R.C P & S Edin., L.R.F P S Glasg..... 188

REVIEWS AND NOTICES OF BOOKS

Physiological Chemistry: A Text-book and Manual for Students By Albert P Mathews Ph.D 188

The Philippine Journal of Science. Vol X Section B: Tropical Medicine 189

The Indian Journal of Medical Research. Vol. III..... 189

LEADING ARTICLES.

SCIENCE AND THE DRINK QUESTION..... 191

HEAT STROKE 192

ANNOTATIONS

Sir William Ramsay 193

The War and its Effect upon the Young 194

An Ideal Mechanical Hand..... 194

Anthrax and Possible Precautions 194

Child Welfare 195

Payment for Certification in Ireland 195

A National Scheme of Physical Training 195

The Cocaine Habit 195

SPECIAL ARTICLES

National Insurance Act 190

Forty-fourth Annual Report of the Local Government Board 197

The Services..... 198

VITAL STATISTICS:

Health of English Towns 199

Health of Scotch Towns 199

Health of Irish Towns 199

OBITUARY

Sir Victor Horsley M.B B S Lond., F R.C.S.Eng F R.S Colonel Consultant, Mediterranean Expeditionary Force. —(*With Portrait*)..... 200

Walter William Hunt Tate M D.Lond., F R.C.P Lond.... 203

CORRESPONDENCE.

The Effect of Ferrivine and Intramine on Syphilis (Prof W M. Bayliss) 204

The Cardiac Disabilities of Soldiers on Active Service (Captain Adolphe Abrahams R.A.M.C)..... 205

Condenser Discharges in Physiological Experiments (Dr E D Adrian) 205

The Sharpening of Hollow Needles (Mr Edward Bigg) —(*Illustrated*) 206

Electrolytic Hypochlorite Solution for Surgical Use (Dr T Goddard Nicholson) 207

The Address of Medical Practitioners Serving in the Army 207

Ackee (Dr J M. Dalziel) 215

Wanted, a Home 215

THE WAR.

The Casualty List 207

Deaths among the Sons of Medical Men 209

Auxiliary Royal Army Medical Corps Funds..... 209

Scottish Medical Service Emergency Committee 209

British Interned Prisoners of War 209

Medical Impressions of the Gallipoli Campaign..... 209

Treatment of Limbless Soldiers 209

A Red Cross Rest House at Hobart 209

A Hospital for Canadian Officers 209

The Employment of Women Doctors in Military Hospitals 209

OBITUARY OF THE WAR:

John Cecil Rix, M.R.C S Eng., Captain Royal Army Medical Corps —(*With Portrait*)..... 208

George Oliver Maw M R.C S Eng Captain Royal Army Medical Corps. —(*With Portrait*) 203

Edward William Lawrence M.B Ch.B Edin. Captain Royal Army Medical Corps —(*With Portrait*) 203

Alexander Stanger Seabrooke M.B B C Cantab Captain Royal Army Medical Corps —(*With Portrait*)..... 203

MEDICAL NEWS

An Examination for Maternity and Child Welfare Workers.. 199

Donations and Bequests 199

Free Training to Belgian Doctors 199

National Welsh Medical School 199

The Association of Infant Welfare and Maternity Centres... 203

Presidency of the Royal College of Physicians of Ireland..... 203

Isolation Hospital for Paignton (Devon)..... 207

Tuberculosis in Belfast 207

Royal College of Surgeons of England: Pass-list 209

London School of Tropical Medicine: Pass-list 209

Society of Apothecaries of London: Pass-list 209

University of Sheffield Pass-list..... 210

Royal College of Surgeons of Edinburgh: Pass-list..... 210

Queen's University of Belfast: Pass list 210

Trinity College, Dublin: School of Physic: Pass list..... 210

Medical Magistrate..... 211

Royal Medical Benevolent Fund 211

The Belgian Doctors' and Pharmacists' Relief Fund..... 211

Oxford Ophthalmological Congress 211

PARLIAMENTARY INTELLIGENCE.

Notes on Current Topics—Mesopotamia and the Dardanelles —Reports of Certifying Surgeons 212

House of Commons Medical Treatment of Discharged Wounded Soldiers.—Control of the Sale of Cocaine —Deaths from Heat-stroke in India —Tuberculosis in Ireland.—Medical Arrangements in Mesopotamia Sir Victor Horsley's Letters..... 212

Appointments 213

Vacancies 213

Births, Marriages, and Deaths 214

Notes Short Comments and Answers to Correspondents ... 214

Medical Diary 215

Meteorological Readings 215

Acknowledgment of Communications received 216

FOR INDEX TO ADVERTISEMENTS SEE PAGE 2

JOHN BALE, SONS & DANIELSSON, LTD.

THE ANIMAL PARASITES OF MAN.
By H B FANTHAM M.A. Cantab, J W W STEPHENS, M D Cantab and F V THEOBALD, M A Cantab Royal 8vo Cloth. Pp 932. 423 Illustrations Price 45s net, postage 2d. Inland

EMERGENCIES IN MEDICAL PRACTICE: The Pathology and Treatment of Morbid Conditions that may suddenly Endanger Life. By Dr RICHARD LENZMANN Translated by RONALD E S KROHN M.D Lond. Royal 8vo Pp 577 + xvi. Price 21s net, postage 6d.

THE INTERNAL SECRETORY ORGANS: Their Physiology & Pathology.
By Prof Dr ARTUR BIEDL Preface by LEONARD WILLIAMS, M D, M R C P, Physician to the French Hospital Royal 8vo Cloth. Pp 606 + xiii Price 21s net, postage 6d

83, 85, 87, 89, 91, GREAT TITCHFIELD STREET, LONDON, W

INDEX

MEDICAL AND OTHER BOOKS AND PUBLICATIONS

PAGE

BAILLIERE, TINDALL & COX:—
Bigg—Indigestion 6
Gardner—Manual of Surgical Anæsthesia Cover 1

BALE, SONS & DANIELSSON—
Biedl—The Internal Secretory Organs their Physiology and Pathology 1
Fantham, Stephens, & Theobald—The Animal Parasites of Man 1
Lenzmann—Emergencies in Medical Practice 1
Moullin—When to Operate in Inflammation of the Appendix Cover 1

BLANCHARD COMPANY—
Faulkner—Tonsils and Adenoids their Treatment and Cure 6

PAGE

BLANCHARD CO—(Continued)
Faulkner—The Tonsil & its Uses Vocal, Mechanic, & Physiologic. 6

CHURCHILL, J & A.:—
Berry Berry Bleass, &c.—The Story of a Red Cross Unit in Serbia Cover 1
Squire's Companion to the British Pharmacopœia Cover 1
Squire's Companion to the British Pharmacopœia 4

FROWDE AND HODDER & STOUGHTON:—
Berkeley and Bonney—Guide to Gynæcology in General Practice 6
Horder—Cerebro-Spinal Fever 6
Beesly and Johnston—Manual of Surgical Anatomy 5

PAGE

FROWDE, &c.—(Continued)
Kelson—Diseases of the Throat, Nose and Ear 6
Mackenzie, Sir J—Principles of Diagnosis and Treatment in Heart Affections 5
Mackenzie Sir J—Principles of Diagnosis and Treatment in Heart Affections Cover 1
Stewart & Evans—Nerve Injuries and their Treatment 6
Still—Common Disorders and Diseases of Childhood 6

LEWIS & CO:—
Moullin—Enlargement of Prostate Cover 1
Russ—A New Treatment for Gonorrhœa Cover 1

MEDICAL PUBLISHING CO:—
Lane Sir A—Operative Treatment of Fractures Cover 1

PAGE

NISBET & CO—
Romer and Creasy—Bone-setting and the Treatment of Painful Joints Cover

SAUNDERS COMPANY—
Collected Papers of the Mayo Clinic 3
Mayo Clinic. Collected Papers Cover 1

WRIGHT & SONS (Barrett)—
Groves—Modern Methods of Treating Fractures Cover

MEDICAL LIBRARIES, &c.—
Behnke—Stammering &c. 4
Deighton, Bell & Co—New or Second hand Books 6
Kelley—Stammering 4
Matthews—Wood Application of Trusses to Hernia 4

OFFICIAL AND GENERAL ANNOUNCEMENTS

ASSISTANCIES, MEDICAL 45, 46

ASYLUMS, HOMES, &c.—
Abbotswood House, Cinderford 40
Ashwood House, Kingswinford 42
Barnwood House Hospital 38
Bishopstone House, Bedford 37
Brunton House, Lancaster 37
Buntingford House Retreat, Buntingford 39
Camberwell House Peckham road 39
Cheadle Royal 38
Clarence Lodge, Clapham Park 37
Colthurst House School, Alderley Edge 37
Coppice, The, Nottingham 39
Dalrymple House, Rickmansworth 40
Dartmoor Sanatorium 40
David Lewis Colony Alderley Edge 37
Duff House, Banff 41
Edgar Allen Institute, Sheffield 42
General Manager Craven-street 43
Ghyllwoods 40
Grove House, Church Stretton 38
Grove, The, Catton, Norwich 38
Haslemere Nursing Home 43
Haydock Lodge, Newton-le-Willows 39
Heigham Hall, Norwich 38
Home for Epileptics Maghull 37
Invernith Sanatorium, Collinsburgh 39
Littleton Hall, Brentwood 43
London Fever Hospital 38
Malling Place Kent 38
Melbourne House Leicester 40

ASYLUMS—(Continued)
Mendip Hills Sanatorium 41
Moat House, Tamworth 38
Mundesley Sanatorium, Norfolk 40
Newmains Retreat, Lanarkshire 40
Nordrach-on Dee Banchory 41
Northumberland House Finsbury Park 37
Northwoods House, Winterbourne 39
No 381 L.O., Strand 45
No 412, L.O., Strand 41
Peckham House 39
Pendyffryn Hall Sanatorium, Nordrach in Wales 40
Plympton House Plympton 38
Portsmouth Corporation Mental Hospital 42
St. Andrew's Hospital Dollis Hill 43
St Andrew's Hospital Northampton 38
St Luke's Hospital for Mental Diseases 42
Shaftesbury House Formby-by-the-Sea 39
Springfield House Private Asylum Bedford 37
Stretton House Church Stretton 38
The Grange, near Rotherham 38
Vale of Clwyd Sanatorium 41
Warneford Asylum, Oxford 37
Westcroft, Ilkley 43
Woodfield, Streatham 43
Wye House, Buxton 39

FINANCIAL, &c.:—
Equitable Reversionary Interest Society 35

HEALTH RESORTS, BATHS, &c.—
Droitwich Brine Baths 42
Harrogate 41
Peebles Hotel Hydro. 41
Smedley's, Matlock 41
Torquay 42
Woodhall Spa 42

HOSPITAL, INFIRMARY SANATORIUM, &c. VACANCIES 43–45

HOUSE & ESTATE AGENTS—
Knight, Frank & Rutley Hanover square 48
No. 888, L.O., Strand 48

LIFE & FIRE ASSURANCES &c.—
Prudential 35

MEDICAL ACCOUNTANTS, &c.—
Turner 46

MEDICAL AGENTS—
Fieldhall Limited 47
Manchester Clerical &c., Association 47
Medical Agency 47
Needes J C 47
Peacock & Hadley 47
Turner 47

MEDICAL SCHOOLS—(LONDON)
London School of Clinical Medicine 35
St. Mary's Hospital Medical School 35
West London Post Graduate College 35

NURSES ASSOCIATIONS—
Co-operation of Temperance Male and Female Nurses 37
General Nursing Association 34
Hospital for Sick Children 37
London Nurses Association 37
London Temperance Nurses Co-operation 37
Male Nurses Temperance Co-operation 37
Mental Nurses Association 38
Mental Nurses Co-operation 37
New Mental Nurses Co-operation 37
Nurses Association 35
Nurses Co-operation 4
St John's House 37
St Luke's Hospital 38
Temperance Association of Male Nurses Ltd. 35

OFFICIAL NOTICES:—
City of London Lying-in Hospital 35
Guy's Hospital 35
London School of Tropical Med. 35
North East London Post-Graduate College 35
Queen Charlotte's Lying-in Hosp 35
University of Birmingham 35
York-road General Lying in Hos 35

PARTNERSHIPS & PRACTICES 43

RAILWAY & STEAMSHIP CO'S.—
New Zealand Shipping Co. 35

SCHOOLS, PREPARATORY, &c:—
Paton Cannon-street 35

TUTORS & LECTURERS—
Schnelle—Stammering 4
Weymouth 35

TRADE AND MISCELLANEOUS ADVERTISEMENTS

AMBULANCES:—
St. John Ambulance—Invalid Carriages 47

BOTTLE MERCHANTS:—
Isaacs 34

CARRIAGES, MOTORS, &c:—
Armstrong—Liveries 47
Offord & Sons—Ford Cars 47
St Martin's Motor Works—Tyres and Accessories 47

CHEMISTS & DRUGGISTS:—
Allen & Hanburys—
Bynogen 17
Chrismol and its Preparations 16
Allenburys Castor Oil 33
Anglo-French Drug Co—Cupraase 23, 24
British Oxygen Co.—Oxygen 28
Browning & Co.—Sempronin 31
Bullock & Co.—Pepsina Porci Cover ii
Acid Glycerine of Pepsine " ii
Burroughs Wellcome & Co.—Soloid Brand Tolamine 21
Soloid Brand Nizin 21
Carnrick & Co—Liquid Peptonoids 19
Dry Peptonoids 19
Christy & Co—Ergospiol 28
Clay Paget & Co.—Glycolactophos 22
Fairchild Bros. & Foster—Zymine Peptonising Tubes 27
Fellows Compound Syrup of Hypophosphites 28
Gale & Co—Compound Syrup of the Glycerophosphates &c. 28
Herpell—
Urodonal 18
Jubol 18
Globeol 18
Pageol, &c. 18

CHEMISTS—(Continued)
H. K. Mulford Company—
Mulford Biologicals 25
Mulford Antitoxin and Bacterin Glass Syringes 25
Hogg & Son—Protein Nerve Food 30
Humphrey Taylor & Co.—Jenors 29
Macfarlan & Co.—
Chloroform 33
Ether 35
Listerian Dressings and Catguts 33
Maltine Manufacturing Co.—Maltine 15
Mertens—
Adrenaline Clin 23
Parke Davis & Co.—Cholelith Pill 14
Raimes & Co.—Slinger's Nutrient Suppositories 30
Saccharin Corporation, Ltd.—
Phytin 12
Salen 12
Peristeltin 12
Digifolin &c. 12
Squire & Sons—
Elixir Colloid Cover iv
Elixir Thyroidei " iv
Elixir Hypophysis Cereb " iv
Liquor Nucleinicus iv
Vinolia Co.—
Royal Vinolia Talcum Powder 13
Royal Vinolia Soap, &c. 13
Wilcox, Jeneau & Co—Kola Antler 31
Zimmermann & Co—Subitol 27

DISINFECTANTS—
Boots Pure Drug Co.—
Chloramine-T Cover iii
Chloramine T Gauze " iii
Condy's Fluid 33
Lysol, Ltd.—Lysol 27
Quibell Bros.—Kerol 21
Willows Francis Butler & Thompson—Lysol 29

FOODS—
Allen & Hanburys—
Allenburys Foods 15
Aylesbury Dairy Co—*Humanized Milk* 33
Benger's Food 11
Blatchley's Diabetic Preparations 32
British Milk Products Co.—Sanaphos 48
Hewlett & Son—Virophos 27
Hookes's Malted Milk 32
Southall Bros & Barclay—Vitafer 30
Thomson & Co.—Pure China Tea 47
Valentine's Meat-Juice Cover ii
Van Abbott & Sons—Foods for Diabetes and Obesity 32
Williams & Co—Vitamogen 27

FURNITURE, &c.:—
Carter—Furniture for Invalids and Hospital Supplies 10

MED & SURG APPLIANCES—
Bailey & Son—
Bath Trusses 8
Verilite Trusses 8
Hygienic Trusses 8
Cocking—Adaptable Poro Plaster Jackets and Splints 34
Davis—Lukens Sterile Catgut 8
Down Bros.—*Differential Stethoscope* 9
Millikin & Lawley—Osteology &c. 33
Robinson & Sons—Gamgee Tissue 33
Salmon Ody Ltd.—Trusses 7
Timpson & Co.—Catgut Cover ii

MINERAL WATERS &c—
Del Mar—Villacabras 34
Del Mar—Vichy 34
Freeman—Glen Lemon 34

TAILORS BOOTMAKERS, &c.—
Dowie & Marshall—Hygienic Bootmakers 35
Harry Hall—Service Dress 47

TOBACCO CIGARS, &c—
Ardath Tobacco Co., Ltd.—State Express Cigarettes 7

VACCINE LYMPH—
Chaumier's Calf Lymph 7
Jenner Institute for Calf Lymph 7
Renner's Calf Lymph Establishment 7

WINES BEER, SPIRITS, &c.—
Ackerman Laurance—*Bra Loyal* 32
Humphrey Taylor & Co—G B Diabetic Whisky 29

X RAY &c APPARATUS—
Dean & Co—Diathermy Apparatus 9
Medical Supply Association—Greenlitte Improved Diathermy Apparatus 10
Siemens Brothers & Co.—
X Ray Outfits 8
Electro-Medical Apparatus 8
Apparatus on Tables for Special Work 8
Radium 8

MISCELLANEOUS—
Bates—Rubber Gloves Repaired &c. 8
Bon Bill Bradford—Cruises and Bowls 47
Bon Bill, Bradford—Tennis 47
Liverpool X Ray and Hydrotherapy Institute 47
Greene—Instruction in Cultivation Market Gardening 47
Harwood—Surgical Nurse 44
No. 888, L.O., Strand—Sanatorium 43
No. 888, L.O., Strand—Chauffeur 44

THE LANCET.

No 4850 LONDON, SATURDAY, AUGUST 12, 1916 Vol. CXCI

CONTENTS.

The whole of the literary matter in THE LANCET is copyright

OBSERVATIONS on the Effects of Tri nitro-toluene on Women Workers By AGNES LIVINGSTONE LEARMONTH M.B., Ch B Edin. and BARBARA MARTIN CUNNINGHAM, M D Edin. .. 261

AN ADDRESS on the Psychopathology of the War Neuroses. Delivered at the Malta Medical Conference on April 8th 1916 by M D ROBB, B Sc.Lond. M.R.C S L.R.C P Lond Temporary Captain R A.M.C late Medical Officer in Charge of Psycho-neurological Department, Malta 254

ORIGINAL ARTICLES.

The Treatment of Infected Suppurating War Wounds By RUTHERFORD MORISON F.R.C S Professor of Surgery Durham University Senior Surgeon Northumberland War Hospital.—(Illustrated) 258

An Anomaly in the Widal Reaction By A. F S SLADDEN M.D Oxon Temporary Captain R.A M C Bacteriologist at a Stationary Hospital 272

The Effect of Typhoid Inoculation on Endemic Goitre at the Lawrence Military Asylum Sanawar Punjab By M. A. NICHOLSON M.R.C S., L.R.C P Lond., Captain Indian Medical Service 275

Contribution to the Etiology of Epidemic Cerebro spinal Meningitis By M F H. GAMBLE, L.R.C P & S Edin., Medical Superintendent, Hospital for Insane Kew Victoria, Australia 277

The Shiah Pilgrimage and the Sanitary Defences of Mesopotamia and the Turco-Persian Frontier By F G CLEMOW M.D Edin., C M.G British Delegate to the International Board of Health and Physician to H.M Embassy Constantinople.—(Illustrated) —(To be continued) 279

CLINICAL NOTES

MEDICAL, SURGICAL OBSTETRICAL, AND THERAPEUTICAL

A Case of Fracture of the Tubercle of the Tibia. By F M NEILD M.B, B S Lond. 278

Placenta Prævia Centralis. By WILLIAM ROBERTSON M D Glasg. 280

REVIEWS AND NOTICES OF BOOKS.

Pathological Lying Accusation and Swindling: A Study in Forensic Psychology By William Healey, A.B M.D, and Mary Tenney Healey B L. 280

History of the Royal College of Surgeons in Ireland and of the Irish Schools of Medicine, including a Medical Bibliography and a Medical Biography By Sir Charles A. Cameron C B Second edition 281

Current German Medicine 281

LEADING ARTICLES

THE STATE TREATMENT OF VENEREAL DISEASES 283

BONE GRAFTS AND UNUNITED FRACTURES 284

ANNOTATIONS

Belgium and the Measures for its Relief 286

The Effects of Tri nitro toluene on Women Workers 286

Acute Poliomyelitis 287

Epidemics resulting from Wars 287

The Etiology of Epidemic Cerebro-spinal Meningitis 288

Erythema Nodosum in Miliary Tuberculosis 288

SPECIAL ARTICLES.

Paraffinum Liquidum: The B P Standard Ignored 289

Medicine and the Law: Attendance upon the Patients of a Colleague: the Ethical Position —A Profitable Slum Dwelling —New and "Separated" Milk Blended 294

The Services 296

PUBLIC HEALTH.

Reports of School Medical Officers for 1915 294

VITAL STATISTICS:
Health of English Towns .. 295
Health of Scotch Towns .. 296
Health of Irish Towns 296

THE WAR.

The Casualty List 298

The Honours List 298

Deaths among the Sons of Medical Men 299

The Central Medical War Committee 300

"Pro Patria" 300

OBITUARY OF THE WAR:

Hubert Cowell Mulkern M R.C S Eng L.R.C P Lond., Captain, Royal Army Medical Corps —(With Portrait) 299

Harold Garrett Chaplin, M D Lond, M.R C S Eng L.R.C P Lond Surgeon, Royal Navy —(With Portrait) 299

Ernest Charles Lambert M R C.S Eng L R.C.P Lond M D Brux Lieutenant Royal Army Medical Corps —(With Portrait) 299

CORRESPONDENCE.

Tuberculosis and the War (Dr Halliday Sutherland) 300

The Faradic Coil as an Instrument of Precision (Dr F Hernaman Johnson) 301

The Recruiting of the Unfit (Dr Robert Turner) 301

Treatment of Carriers of Amœbic Dysentery (Prof J W W Stephens) 302

Immobility after Joint Injury (Mr Paul Bernard Roth) 302

The Sedative Pool Bath" (Dr R. Fortescue Fox) 302

Early Ether Analgesia (Dr H A. Ellis) 302

Railway Travelling in India in the Hot Weather 302

The Work of the Registered Hospitals for the Insane 303

Tatties 303

The Spelling of Cinchona 303

OBITUARY

William Taylor M D Edin., F R C P Edin. 297

An Appreciation of the late Dr A H. Lister 297

MEDICAL NEWS

The late Dr H B Fleming 272

Convalescent Home at Grange-over-Sands 280

Edinburgh Royal Infirmary the Appointment of Senior Students to Resident P s s. 2 0

Gazette of the 3rd London General Hospital 295

The Rockefeller Institute for Medical Research 295

Royal Colleges of Physicians of London and Surgeons of England: Diplomas conferred.—Pass-list 303

Medical Officer to Elephant Island Relief Expedition 304

Incapable of Work" 304

London Intercollegiate Scholarships Board 305

Royal Medical Benevolent Fund 305

Medical Education of Women 305

Illegal Traffic in Cocaine 305

PARLIAMENTARY INTELLIGENCE

Notes on Current Topics Reports of Certifying Surgeons 306

House of Commons Venereal Diseases and National Insurance. — Examining Medical Officers to War Office —Industrial Poisoning. — A Russian Medical Man —Sanitation at Rowlston.—Military Hospitals in London.—Sanitary and Medical Arrangements in Mesopotamia 308

Appointments 307

Vacancies 307

Births, Marriages, and Deaths .. 308

Notes Short Comments and Answers to Correspondents .. 308

Medical Diary 308

Books &c. received 310

Meteorological Readings 310

Acknowledgment of Communications received 310

FOR INDEX TO ADVERTISEMENTS SEE PAGE 2.

JOHN BALE, SONS & DANIELSSON, LTD.

THE PRINCIPLES OF HYGIENE. As applied to Tropical and Sub tropical Climates. By W J R SIMPSON M D Price 15s net, postage 5d

STUDIES IN LABORATORY WORK. By C W DANIELS, M B Camb, M R C S Eng THIRD EDITION Price 16s net, postage 6d

TROPICAL MEDICINE AND HYGIENE. By the same Author In 3 Parts Price 7s 6d. each net, postage 4d each

VENOMS, VENOMOUS ANIMALS, AND ANTIVENOMOUS SERUM THERAPEUTICS By A. CALMETTE M D Cloth. Price 15s net, postage 5d

AMŒBIC OR TROPICAL DYSENTERY. By W CARNEGIE BROWN, M.D Fcap 4to. 271 + viii pp Cloth Price 7s 6d net, postage 4d

83, 85, 87, 89, 91, GREAT TITCHFIELD STREET, LONDON, W

INDEX

MEDICAL AND OTHER BOOKS AND PUBLICATIONS

PAGE

ARNOLD—
Sibley—Treatment of Diseases of the Skin Cover 1

BAILLIERE, TINDALL & COX:—
Adams & Cassidy—Acute Abdominal Diseases Cover 1
Bigg—Indigestion 4
Gardner—Manual of Surgical Anæsthesia Cover 1

BALE, SONS & DANIELSSON:—
Brown—Amœbic or Tropical Dysentery 1
Calmette—Venoms Venomous Animals, and Antivenomous Serum Therapeutics 1
Daniels—Studies in Laboratory Work 1
Daniels—Tropical Medicine and Hygiene 1

PAGE

BALE, SONS & CO—(Continued).
Moullin—When to Operate in Inflammation of Appendix. Cover 1
Simpson—Principles of Hygiene 1

CASSELL & CO:—
Walker—Surgical Diseases and Injuries of the Genito Urinary Organs Cover 1

CHURCHILL, J & A.—
Eden and Lockyer's Gynæcology Cover 1
Hale White's Materia Medica Cover 1
Squire's Companion to the British Pharmacopœia Cover 1
Squire's Companion to the British Pharmacopœia 5
Thorne Bezly—Schott Methods of Treatment of Chronic Diseases of the Heart 4

PAGE

LEWIS & CO:—
Medical Books 5
Moullin—Enlargement of Prostate Cover 1
Powell Sir R. D., & Hartley—On Diseases of Lungs &c. Cover 1
Ross—A New Treatment for Gonorrhœa Cover 1
Scientific Books 5

MEDICAL PUBLISHING CO:—
Lane Sir A.—Operative Treatment of Fractures 4

NISBET & CO:—
Romer and Creasy—Bonesetting and the Treatment of Painful Joints Cover 1

SAUNDERS COMPANY—
Albee—Bone-Graft Surgery 3
Crile—The Kinetic Drive 3

SAUNDERS CO—(Continued)
Cullen—Diseases of the Uterus
Dearderick & Thompson—Diseases of South
Graves—Gynæcology
Saunders Important New

WRIGHT & SONS (Bristol)—
An Index of Prognosis and Results of Treatment

MEDICAL LIBRARIES, &c.
Behnke—Stammering Lisping Cleft Palate Speech
Deighton, Bell & Co—Second hand Books
Ketley—Stammering
Lewis & Co's Medical and Circulating Library
Matthews—Wood Appliances, Trusses to Hernia

OFFICIAL AND GENERAL ANNOUNCEMENTS

PAGE

ASSISTANCES, MEDICAL 39

ASYLUMS, HOMES, &c —
Abbotswood House, Cinderford 35
Ashwood House, Kingswinford 32
Barnwood House Hospital 35
Bishopstone House Bedford 32
Brunton House, Lancaster 32
Buntingford House Retreat, Buntingford 35
Camberwell House Peckham road 34
Capel Lodge Retreat and Sanatorium near Folkestone 35
Cheadle Royal 35
Clarence Lodge, Clapham Park 32
Colthurst House School, Alderley Edge 32
Coppice, The Nottingham 33
Dalrymple House, Rickmansworth 35
Dartmoor Sanatorium 35
David Lewis Colony Alderley Edge 32
Duff House, Banff 36
Edgar Allen Institute, Sheffield 32
General Manager Craven-street 37
Ghyllwoods 35
Grove House, Church Stretton 33
Grove, The Catton Norwich 33
H. R. H., Tooting 37
Haslemere Nursing Home 37
Haydock Lodge, Newton le-Willows 31
Heigham Hall, Norwich 33
Home for Epileptics, Maghull 32
Invernith Sanatorium Colinsburgh 31
Littleton Hall, Brentwood 37
London Fever Hospital 33
Malling Place, Kent 33
Melbourne House Leicester 3
Mendip Hills Sanatorium 36
Moat House, Tamworth 35

PAGE

ASYLUMS—(Continued)
Mundesley Sanatorium Norfolk 35
Newmains Retreat Lanarkshire 34
Nordrach-on Dee, Banchory 36
Northumberland House Finsbury Park 32
Northwoods House Winterbourne 34
No 391 L.O., Strand 37
No 412, L.O., Strand 37
Peckham House 34
Pendyffryn Hall Sanatorium, Nordrach in Wales 35
Plympton House Plympton 35
Portsmouth Corporation Mental Hospital 32
St. Andrew's Hospital Dollis Hill 37
St. Andrew's Hospital, Northampton 33
St Luke's Hospital for Mental Diseases 32
Shaftesbury House, Formby-by-the-Sea 34
Springfield House Private Asylum Bedford 32
Stretton House Church Stretton 33
The Grange near Rotherham 33
Vale of Clwyd Sanatorium 35
Warneford Asylum Oxford 32
Westcroft, Ilkley 37
Woodfield St eatham 37
Wye House, Buxton 33

FINANCIAL, &c.—
Equitable Reversionary Interest Society 30

HEALTH RESORTS, BATHS &c —
Caterham Sanitarium 32
Droitwich Brine Baths 37
Peebles Hotel Hydro 34
Smedley's Matlock 35
Woodhall Spa 37

PAGE

HOSPITAL, INFIRMARY SANATORIUM, &c VACANCIES 37-39

HOUSE & ESTATE AGENTS:—
Keogh & Co., Dublin 40
Shepherds Lincoln's Inn Fields 40

LIFE & FIRE ASSURANCES &c:—
Prudential 30

MEDICAL ACCOUNTANTS, &c:—
Turner 39

MEDICAL AGENTS —
Fieldhall, Limited 41
Manchester Clerical &c., Association 41
Medical Agency 41
Needes, J C 41
Peacock & Hadley 41
Turner 41

MEDICAL SCHOOLS:—
(LONDON)
London School of Clinical Medicine 28
St. Mary's Hospital Medical School 29
West London Post Graduate College 28
(PROVINCIAL, &C)
University of Manchester 29

NURSES ASSOCIATIONS —
Co-operation of Temperance Male and Female Nurses 31
General Nursing Association 31
Hospital for Sick Children 33
London Nurses Association 30
London Temperance Nurses Co-operation 31

PAGE

NURSES' ASSOC. (Continued)
Male Nurses Temperance Co-operation
Mental Nurses Association
Mental Nurses Co-operation
New Mental Nurses Co-operation
Nurses Association
Nurses Co-operation
St Bartholomew's Hosp Training Nurse Institution
St John's Hospital
St Luke's Hospital
Temperance Association of Nurses Ltd.

OFFICIAL NOTICES —
City of London Lying-in Hospital
Incorporated Society of Trained Masseuses
London School of Tropical Medicine
Mackenzie Steuart v The Home and Hospital for Incurables and Another
Queen Charlotte's Lying in Hospital
Royal Institute of Public Health
University of Birmingham
University of London University College
York road General Lying in Hospital

PARTNERSHIPS & PRACT

RAILWAY & STEAMSHIP
New Zealand Shipping Co

SCHOOLS, PREPARATORY
No 929 L.O., Strand

TUTORS & LECTURERS —
Behnke
Behnke—Stammering
Weymouth

TRADE AND MISCELLANEOUS ADVERTISEMENTS

AMBULANCES —
St John Ambulance — Invalid Carriages 6

BOTTLE MERCHANTS:—
Isaacs 6

CARRIAGES MOTORS, &c —
Armstrong—Liveries 40
Offord & Sons—Ford Cars 6
St Martin's Motor Works—Tyres and Accessories 6

CHEMISTS & DRUGGISTS:—
Allen & Hanburys—
Bynin Amara 17
Allenburys Castor Oil 24
Anglo-French Drug Co —
Ghiyl 22
Hectine 22
Hectorgyre 22
Cupruse
Battley & Watts—
Liquor Opii Sedativus 14
British Organotherapy Co —
Reliable Organotherapy Products 7
British Oxygen Co —
Oxygen 1
Browning & Co.—
Semprolin 1
Bullock & Co.—
Pepsina Porci 24
Acid Glycerine of Lepsine 24
Burroughs Wellcome & Co.—
Tabloid Brand Aspirin 1
Christy & Co.—Ergoapiol 21
Clay Paget & Co.—
Glycolactophos 21
Fellows Compound Syrup of Hypophosphites 13
Gale & Co —Compound Syrup of the Glycerophosphate &c. 21

PAGE

CHEMISTS—(Continued)
Heupels—
Urodonal 23
Iohol 23
Globeol 23
Pageol, &c.
Hogg & Son—
Protein Nerve Food 8
Humphrey Taylor & Co —
Junora 9
Mercens—
Electrargol 14
Electroselenium 14
Electrouprol 14
Electromercurol 14
Electromarciol
Parke Davis & Co —
Pituitrin 18
Raimes & Co.—Slinger's Nutrient Suppositories 28
Saccharin Corporation, Ltd.—
Norocaia 15
Trivalin 15
Perist itin 15
Smith & Co —
Hall's Wine 10
Tidman's Sea Salt 24
Wilcox, Joseau & Co —
Nativelle's Crystallised Digitaline 13
Williams Francis Butler & Thomi son—
Mackey's Glycerules
Zimmermann & Co.—
Subitol 42

DISINFECTANTS —
Boots Pure Drug Co —
Chloramine-T 22
Chloramine T Cause 6
Condy's Fluid 8
Lysol, Ltd —Lysol 25
Quilleil Bros.—Kerol 13
Warner—
Sanitas Formaldehyde 13

PAGE

FOODS —
Allen & Hanburys—
Allenburys Foods 18
Aylesbury Dairy Co —
Humanized Milk 8
Benger's Food 12
Blatchley's Diabetic Preparations 8
Cadbury's Cocoa 21
Fairchild Bros & Foster—
Peptogenic Milk Powder Cover iv
Hewlett & Son—
Virophos 25
Hookers Malted Milk Cover iii
Thomson & Co —
Pure China Tea 42
Valentine's Meat Juice Cover iii
Van Abbott & Sons—
Foods for Diabetics and Obesity 8
Van Houten's Cocoa 11

FURNITURE, &c. —
Carter—Furniture for Invalids and Hospital Supplies Cover ii
Reading Stands, Bed Tables, &c. Cover ii

MED & SURG APPLIANCES —
Bailey & Son—
Artificial Limbs &c. 21
Invalid Carriages and Chairs for Wounded Soldiers 21
Dari—Lukens Sterile Catgut 7
Down Bros—Differential Stethoscopes Cover ii
Millikin & Lawley—
Orthopedic &c. 8
Robinson & Son—
Lamps Tissue 8
Salmon Ody Ltd.—
Trusses 7
Sharp & Co—
Sterilizers &c 8
Thompson & Co —
Thermometers 7

PAGE

MINERAL WATERS &c —
Del Mar—Villacabras
Del Mar—Vichy
Freeman—Limeade Lemon
Iris & Co —Tonalka

STATIONERY &c:—
Mabie Todd & Co.—
Swan Fount Pen

TAILORS BOOTMAKERS &
Dowie & Marshall—
Hygienic Bootmakers
Harry Hall
Service Dress R A M C Navy

TYPEWRITING &c —
Taylor's Typewriters

VACCINE LYMPH —
Chaumier's Calf Lymph
Jenner Institute for Calf Lymph
Lennon Calf Lymph Institute
Pearl

WINES BEER, SPIRITS &
Brown Gore & Co —
Cantier Fine Old Brandy
Hunter Taylor & Co —
Old Highlands Whisky

X RAY &c APPARATUS
Medical Supply Association
Greenlee Improved Diaphragms

MISCELLANEOUS —
Antiseptic Plaster
Bovril
Grieve—Instruments
Lion Mark Tape &c

THE LANCET.

No 4851. LONDON, SATURDAY, AUGUST 19, 1916 Vol. CXCI.

CONTENTS.

The whole of the literary matter in THE LANCET is copyright

HARBEN LECTURES (Abstracts of) on Rivers as Sources of Water Supply Delivered before the Royal Institute of Public Health by A C Houston M.B O.M.Edin., D Sc. *Director of* Water Examinations, Metropolitan Water Board — Lectures I. II and III..... 311

ORIGINAL ARTICLES

Observations on the Effect of the Addition of Fresh Human Blood Serum to Artificial Media. By Leonard S Dudgeon F R.C.P Lond., Lieutenant-Colonel R.A.M.C (Temp.); F Bawtree M.R.C S L.R.C P *Lond*, and Dudley Corbett M.A., M.D Oxon., M.R.C.P.Lond.—(*Illustrated*) 314

Three Cases of Entamœba Histolytica Infection Treated with Emetine Bismuth Iodide By George C Low M.A. St And., M.D Edin., and Clifford Dobell, M.A. 319

The Intravenous Injection of Oxygen Gas as a Therapeutic Measure. By F W Tunnicliffe, M.D Lond. and G F Stebbing M.B., B S .. 321

On the Gluteal Fold in Sciatic Neuritis. By Hildred Carlill, M.A. M.D Cantab. M.R.C.P Lond., Temporary Surgeon, R.N —(*Illustrated*) 323

A Case of Dilatation of the Hepatic Flexure of the Colon giving Rise to the Physical Signs Usually Associated with Subphrenic Pyopneumothorax. By W J Morrish M.D Lond. M.R.C S With a Note by T D Acland M D Oxon. F.R.C P *Lond* Major, R.A.M C (T) 325

The Shiah Pilgrimage and the Sanitary Defences of Mesopotamia and the Turco-Persian Frontier By F G Clemow M.D Edin C.M.G —(*Illustrated*) —(*To be continued*) 333

REVIEWS AND NOTICES OF BOOKS

Squire's Companion to the British Pharmacopœia. By Peter Wyatt Squire. Nineteenth edition 327

The Mortality from Cancer throughout the World. By F L Hoffmann LL.D 327

Parasitology Vol VIII. 327

Journal of Cancer Research. Vol I 328

NEW INVENTIONS.

A Wristlet Ligature Holder —(*Illustrated*) 328

An Egg cup for Single-handed Use.—(*Illustrated*) 328

LEADING ARTICLES

The Manufacturing Chemist and His Opportunity 329

The Status of the Certified Midwife 329

ANNOTATIONS

Soldiers and the Land..... 330

A German Doctor's Experiences in London during the War .. 331

Acute Poliomyelitis..... 331

In Honour of Verdun 331

The Metropolitan Water-supply 332

China and Western Medicine... 332

Metropolitan Hospital Sunday Fund 332

The Board of Scientific Societies 332

SPECIAL ARTICLES

National Medical Association of China 336

Paris..... 338

The Belgian Doctors and Pharmacists Relief Fund..... 338

The Services..... 341

Vital Statistics:

Vital Statistics of London during July 1916..... .. 339

Analysis of Sickness and Mortality Statistics in London during July 1916 .. 339

Health of English Towns..... 340

Health of Scotch Towns 340

Health of Irish Towns..... 340

CORRESPONDENCE.

Notes on Three Cases of Chlorine Gas Poisoning (Mr Edward Bigg)... 341

Atmospheric Heat and Humidity in Relation to Pyrexia (Colonel Mathew D O Connell A.M.S (ret.)) .. 341

Treatment of the Main Nerves in Amputations (Mr A. Marmaduke Shield) 342

The Psycho-pathology of War Neuroses (Dr G Burton Brown) 343

Chinese Toe rot and Foot-tetter (Dr J McF Pollard, Dr J B. L Johnston)..... 343

Alimentary Rest in Diabetes .. 343

The Effects of Tri nitro toluene on Women Workers (Dr G Arbour Stephens) 343

Children's Country Holidays Fund (Mr Francis Morris) .. 350

The Spelling of Cinchona (Dr George Foy) 350

Tachycardia A Personal Experience 351

Longevity among Great Soldiers 351

Pemmican 351

OBITUARY

Morton Alfred Smale M.R C S Eng L.S.A. L.D S 343

Albert Fränkel 344

John Eustace Webb M.B C M Aberd 344

THE WAR.

The Casualty List.... 344

Deaths among the Sons of Medical Men 344

The Central Medical War Committee 345

The Pensions Scale for Amputations in the Navy..... 345

Hospital Units for Russia: Surgeons Wanted 346

The Pay of a Special Reserve R.A.M.C Officer 346

Two Years Work by the Wounded Allies Relief Committee 346

Harold Fink Hospital Park lane 346

Behind the Lines" 346

OBITUARY OF THE WAR:

Alfred Maurice Thomson M.B B S R U I Captain R.A M C —(*With Portrait*) 346

John Henry Dyke Acland M.R.C.S Eng., Captain, R.A.M.C —(*With Portrait*) 346

Hugh Gwilym Morris, B A., M.B B Ch.Oxon., Captain, R A.M.C —(*With Portrait*) 346

Richard Fenton Theodore Newbery M B Ch.B Edin Lieutenant, R.A.M.C —(*With Portrait*) 346

MEDICAL NEWS

Tuberculosis and the Working Man 321

Typhus in Glasgow 328

The New Hull Sanatorium 328

The Approved Societies in Ireland and the Certification Scheme..... 340

A Conviction under the Dentists Act.... 347

Donations and Bequests 348

A Cab whistling Prohibition 348

Examining Board in England by the Royal Colleges of Physicians of London and Surgeons of England: Pass list. 347

University of London: Pass-list 347

Apothecaries Hall of Ireland Election of Members of the Court.—Pass list.... 348

London Hospital Medical College: Scholarships and Prizes awarded 348

St. Thomas's Hospital.. 348

PARLIAMENTARY INTELLIGENCE.

Notes on Current Topics..... 348

House of Commons 348

Appointments.. ... 348

Vacancies 348

Births, Marriages, and Deaths. 350

Notes, Short Comments and Answers to Correspondents ... 350

Meteorological Readings.. 351

Medical Diary 351

Acknowledgment of Communications received 350

FOR INDEX TO ADVERTISEMENTS SEE PAGE 2.

JOHN BALE, SONS & DANIELSSON, LTD.

EMERGENCIES IN MEDICAL PRACTICE: The Pathology and Treatment of Morbid Conditions that may suddenly Endanger Life Translated by R E S Krohn, M D Lond Pp 577 21s net postage 6d

"The book may be warmly recommended to the attention of all practitioners"—Lancet

LOCAL ANÆSTHESIA: An Illustrated Text-Book for Students and Practitioners By Prof Hirschel 2nd Impression Royal octavo Pp 193 8s 6d. net, postage 6d.

"Of great value as embodying the latest knowledge and experience —British Dental Journal.

SURGERY OF THE LUNG. Translated by David M Barcroft M D With 114 Coloured and other Illustrations and 2 Coloured Plates Pp 270 12s 6d net, postage 4d

"Its contents embody the most modern methods employed in the surgery of the lung"—Journal of the Royal Army Medical Corps

THOMPSON'S COMPENDIUM of the Pharmacopœias and Formularies (Official and Unofficial). FIFTH EDITION Completely Revised in accordance with the New British Pharmacopœia (1914) 5s net, postage 4d

"Of particular interest to medical men and pharmacists"—Chemist and Druggist

83, 85, 87, 89, 91, GREAT TITCHFIELD STREET, LONDON, W

INDEX

MEDICAL AND OTHER BOOKS AND PUBLICATIONS

PAGE

BAILLIERE, TINDALL & COX —
Bigg—Indigestion 3
Freyer—Enlargement of the Prostate Cover 1
Freyer—Surgical Diseases of the Urinary Organs Cover 1
Gardner—Manual of Surgical Anæsthesia Cover 1
Lockhart Mummery—Diseases of the Colon and their Surgical Treatment Cover 1
Thorne—Nauheim Treatment of Diseases of the Heart and Circulation in England Cover 1

BALE, SONS & DANIELSSON —
Emergencies in Medical Practice 1
Hirschel—Local Anæsthesia 1
Moullin—When to Operate in Inflammation of the Appendix Cover 1
Surgery of the Lung 1

PAGE

BALE, SONS & CO —(Continued).
Thompson's Compendium of the Pharmacopœias and Formularies 1

CHURCHILL, J & A. —
Berry Berry Bleasdale &c.—A Red Cross Unit in Serbia Cover 1
Carruthers—Urine Examination Made Easy Cover 1
Eden and Lockyer—Gynæcology Cover 1
Ghon—Primary Lung Focus of Tuberculosis in Children Cover 1
Hardwicke—Sight-Testing Made Easy Cover 1
Hare—Alcoholism Its Clinical Aspects and Treatment Cover 1
Hall—Surgery in War Cover 1
Smith—The Cure of Obesity and Obese Heart Cover 1
White—Materia Medica Cover 1

PAGE

FROWDE AND HODDER & STOUGHTON —
Waring—Surgical Diseases of the Gall Bladder &c. Cover 1

KEMPTON —
Roth—Notes on Military Orthopædics Cover 1

LEWIS & CO —
Moullin—Enlargement of Prostate Cover 1
Russ—A New Treatment for Gonorrhœa Cover 1

LONGMANS, GREEN & CO —
Gray—Anatomy Descriptive and Applied 3
Schäfer Sir E A.—Essentials of Histology 3

MEDICAL PUBLISHING
Lane Sir A.—Operative ment of Fractures

NISBET & CO —
Romer and Creasy—Bone &c

WRIGHT & SONS (Bristol
Medical Annual, 1918

MEDICAL LIBRARIES &c
Behnke—Stammering &c.
Delighton, Bell & Co —
Second hand Books
Frank Journal
Keller—Stammering
Matthews—Wood Applica
Truss as to Hernia
Scholl Mfg Co —Scientific
tion for Ailments of the

OFFICIAL AND GENERAL ANNOUNCEMENTS

ASSISTANCES MEDICAL 48

ASYLUMS, HOMES, &c —
Abbotswood House, Cinderford 44
Ashwood House, Kingswinford 41
Barnwood House Hospital 42
Bishopstone House Bedford 41
Brunton House, Lancaster 41
Camberwell House, Peckham road 43
Cheadle Royal 42
Clarence Lodge Clapham Park 41
Colthurst House School, Alderley Edge 45
Coppice The Nottingham 42
Dalrymple House Rickmansworth 43
David Lewis Colony Alderley Edge 40
Duff House, Banff 45
Edgar Allen Institute Sheffield 41
General Manager, Craven-street 46
Ghyllwoods 43
Grove House Church Stretton 42
Grove The Catton, Norwich 49
Haslemere Nursing Home 48
Haydock Lodge Newton-le-Willows 43
Heigham Hall Norwich 42
Home for Epileptics Maghull 40
Invernith Sanatorium, Colinsburgh 44
Littleton Hall, Brentwood 48
London Fever Hospital 42
Malling Place Kent 42
Melbourne House Leicester 44
Mendip Hills Sanatorium 44
Moat House Tamworth 42
Mundesley Sanatorium Norfolk 45
Newmains Retreat Lanarkshire 44
New Saughton Hall, Polton, Midlothian 43
Newtonbrach-on Dee Banchory 45
Northumberland House Finsbury Park 45

ASYLUMS —(Continued)
Northwoods House, Winterbourne 43
No 331 LO., Strand 48
No. 412, LO Strand 48
No 927 LO Strand 48
Otto House West Kensington 41
Peckham House 44
Pendyffryn Hall Sanatorium, Nordrach in Wales 44
Plympton House, Plympton 42
Portsmouth Corporation Mental Hospital 41
Royal Earlswood Institution for Mental Defectives 45
St. Andrew's Hospital Dollis Hill 46
St Andrew's Hospital Northampton 42
St George's Retreat, Burgess Hill 41
St. Luke's Hospital for Mental Diseases 41
Springfield House Private Asylum Bedford 41
Stretton House Church Stretton 49
The Grange near Rotherham 42
Vale of Clwyd Sanatorium 45
Warneford Asylum Oxford 41
Westcroft, Ilkley 46
Woodfield, Streatham 44
Wye House Buxton 42

FINANCIAL &c. —
Equitable Reversionary Interest Society 39

HEALTH RESORTS BATHS, &c —
Alexandra Therapeutic Institute 48
Caterham Sanitarium 45
Droitwich Brine Baths 45
Smedley's Matlock 46

HOSPITAL, INFIRMARY SANATORIUM &c VACANCIES 46-47

HOUSE & ESTATE AGENTS —
Bedford & Co., Wigmore-street 49
Elliott Son & Boyton Vere-street 49
Loy Clark Wimpole-street 49

LIFE & FIRE ASSURANCES &c —
General Life Assurance Co 39
National Provident Institution 39
Prudential 39

MEDICAL ACCOUNTANTS, &c —
Turner 49

MEDICAL AGENTS —
Fieldhall Limited 49
Manchester Clerical, &c. Association 49
Medical Agency 49
Needes J C 49
Peacock & Hadley 49
Turner 49

MEDICAL SCHOOLS —
(LONDON)
Charing Cross Hospital Medical School 35
London School of Clinical Medicine 33
St. Mary's Hospital Medical School 31
University College Hosp Medical School 35
University of London University College 35
West London Post Graduate College 35
(PROVINCIAL &c)
University of Bristol 33
University of Durham College of Medicine Newcastle-upon Tyne 33
University of Manchester 37

NURSES ASSOCIATIONS —
Army and Navy Male Nurses operation
Co-operation of Temperance and Female Nurses
General Nursing Association
Hospital for Sick Children
London Nurses Association
London Temperance Nurses operation
Male Nurses Temperance Co-tion
Mental Nurses Association
Mental Nurses Co-operation
Nurses Association
Nurses Co-operation
Registered Nurses Society
St John's Hos
St Luke's Hospital
Temperance Association of Nurses Ltd.

OFFICIAL NOTICES —
City of London Lying in Hospital
Guy's Hospital
Incorporated Society of Trained Masseuses
London School of Tropical Medicine
Queen Charlotte's Lying in Hospital
University of Cambridge

PARTNERSHIPS & PRACTICES

RAILWAY & STEAMSHIP CO
New Zealand Shipping Co.

SCHOOLS PREPARATORY, &c
No 929 LO., Strand

TUTORS & LECTURERS —
Medical Correspondence College
Weymouth

TRADE AND MISCELLANEOUS ADVERTISEMENTS

AMBULANCES —
St. John Ambulance — Invalid Carriages 5

BOTTLE MERCHANTS —
Isaacs 4

CARRIAGES, MOTORS, &c —
Armstrong—Liveries 5
St Martin's Motor Works—Tyres and Accessories 5
Stelastic Tyres Ltd —Stelastic Shrouded Steel Studded Tyre 5

CHEMISTS & DRUGGISTS —
Allen & Hanburys—
Argein Kavol, Cystaxol 19
Byno Lecithin &c 23
Chrismol and its Preparations 21
Anglo-French Drug Co —
Sterilizable Outfit 25
Galyl 25
Antikamnia Chemical Co —
Antikamnia Tablets 23
Antiphlogistine 23
Battley & Watts—
Battley's Liquors 10
British Drug Houses Ltd.—
Intramine 17
Ferriolne 12
British Oxygen Co —
Oxygen .. Cover II
Bullock & Co —
Pepsina Porci 31
Acid Glycerine of Lepsine 4
Burroughs Wellcome & Co.—
Benzamine Lactate &c 23
Christy & Co —
Glyco-Thymoline 16
Ergoapiol 33
Cook & Co —
Catectant Lozenges Cover II
Evans Sons Lescher & Webb—
Capsul Ol Santal. Flav 27

CHEMISTS —(Continued)
Fletcher Fletcher & Co —
Vibrona 18
Gale & Co.—Compound Syrup of the Glycerophosphates &c. 31
Hennells—
Urodonal 14
Howards Sodil Bicarb. 30
Lambert Pharmacal Co —
Listerine 29
Maclarlan & Co —
Chloroform Ether &c. 33
Newbery & Sons—
Pulvis Jacobi Ver 33
New York Pharmaceutical Co —
Haydens Viburnum Compound 10
Parke Davis & Co —
Liquid Petrolatum 17
Price's Patent Candle Co., Ltd.—
Price's Night Lights &c. 31
Raimes & Co —Slinger's Nutrient Suppositories .. 33
Richards & Sons—
Lactopeptine Cover II
S P Charnes Co —Sulphaqua 31

DISINFECTANTS —
Boots Pure Drug Co.—
Chloramine-T 6
Chloramine T Gauze
Condy's Fluid 4
Sanitas Co.—
Sanitas Fluid &c 22

FOODS —
Benger's Food 11
Blatchley's Diabetic Preparations Cover III
Bolleine —Delecta Chocolates 33
Brand & Co —Essence of Chicken 22
British Milk Products Co —
Sanatogen 33
Callard & Co.—Dainty Food 22
Chymol Company—
Chymol .. Cover II

FOODS —(Continued)
Fry's Malted Cocoa Cover III
Hewlett & Son—
Virophe 3
Horlick's Malted Milk Co —
Malted Milk 9
Mannin Food Co —
Mannin Diabetic Foods 32
Pan Yan Pickle 32
Savory & Moore—
Peptonized Milk 27
Southall Bros & Barclay—
Vitafer 22
Thomson & Co —
Pure China Tea 42
Valentine's Meat Juice 24
Van Abbott & Sons—
Gluten Flour Cover III
Wander Ltd.—Ovaltine 15

FURNITURE, &c —
Carter—Furniture for Invalids and Hospital Supplies 8

MED & SURG APPLIANCES —
Bailey & Son—
Operation Tables and Sterilizers 7
Davi —Lukens Sterile Catgut 6
Down Bros —Apparatus for Saline Infusion 8
Hope & Son—Steam Vaporisers 4
Leslies Ltd —
Leslies Zinoplast &c Cover II
Millikin & Lawley—
Osteology &c. 4
Robinson & Sons—
Gamgee Tissue 5
Salmon Ody Ltd.—
Trusses 4
Scholl Mfg Co —
Foot Ease &c 4
Timpson & Co —Trusses 35
Zeal—Le Fevre's Clinical Thermometer 4

MINERAL WATERS &c —
Del Mar—Villacabras
Del Mar—Vital
Vichy-Célestins ..
Vichy Etat Pastilles

SANITARY APPLIANCES, &c —
Armand Patent Milk Sterilizer

STOVES &c —
British Commercial Gas Association—Gas Fires 22

TAILORS BOOTMAKERS, &c. —
Burberrys—
The Burberry
Burberry Suits Dress
Harry Hall—
Service Dress R A M C and Navy 5

TOBACCO CIGARS &c —
Arcadia Tobacco Co Ltd —
State Express Cigarettes 7
I L Hill —Gala Cigarettes
Player's —
Ter Cigarettes 35

VACCINE LYMPH —
Chandler's Calf Lymph
Jenner Institute for Calf Lymph 5

X RAY &c APPARATUS —
Medical Supply Association
Thurlow 6

MISCELLANEOUS —
Girl wanted—Institution in London
Mar
No 1 LO.—Lessons 6

THE LANCET.

No 4852 LONDON, SATURDAY, AUGUST 26, 1916 Vol. CXCI.

CONTENTS.

The whole of the literary matter in THE LANCET is copyright

LEADING ARTICLE

Student's Guide Session 1916-1917 353

General Council of Medical Education & Registration.. 354

MEDICAL EXAMINING BODIES AND SCHOOLS OF THE UNITED KINGDOM.

I.—ENGLAND AND WALES

The Universities.

University of Oxford 356
Radcliffe Infirmary and County Hospital 358
University of Cambridge 356
Addenbrooke's Hospital. 357
University of London 357
Medical Schools
St. Bartholomew's Hospital 358
Charing Cross Hospital .. 359
St. George's Hospital 360
Guy's Hospital 360
King's College 361
King's College Hospital Medical School 361
London Hospital 362
St. Mary's Hospital 362
Middlesex Hospital 363
St. Thomas's Hospital. .. 364
University College 365
University College Hospital Medical School 365
Westminster Hospital 366
London (Royal Free Hospital) School of Medicine for Women 367
University of Durham 368
The College of Medicine New castle-upon Tyne 369
Newcastle-upon Tyne Royal Victoria Infirmary 369
Northumberland, Durham, and Newcastle Infirmary for Diseases of the Eye 369
University of Birmingham 369
Birmingham General Hospital 370
Queen's Hospital 370
Birmingham and Midland Eye Hospital 370
University of Liverpool. .. 371
Victoria University of Manchester 372
Manchester Royal Infirmary 373
Manchester Children's Hosp 373
Manchester Northern Hospital for Women and Children 373
University of Leeds 374
Leeds General Infirmary 374
University of Sheffield 374
University of Bristol 375
Bristol Royal Infirmary and Bristol General Hospital 375
University of Wales 376
University College Cardiff .. 376
King Edward VII's Hospital, Cardiff 378
Swansea General and Eye Hospital and Swansea Hospital Convalescent Home .. 377

English Medical Corporations Granting Diplomas

Examining Board in England by the Royal College of Physicians of London and the Royal College of Surgeons of England 377
Royal College of Physicians of London: the Membership and Fellowship 378
Royal College of Surgeons of England: the Fellowship 378
Society of Apothecaries of London 378

Metropolitan Ancillary Schools and Hospitals affording Facilities for Clinical Observation:

Seamen's Hospital Society 379
West London Hospital 379
Great Northern Central Hospital 379
Prince of Wales's General Hospital 380
London Temperance Hospital 380
Hampstead General & North West London Hospital 380
New Hospital for Women 380
South London Hospital for Women 380
French Hospital and Dispensary 380
Italian Hospital 381
German Hospital 381
National Hospital for the Paralysed and Epileptic .. 381
Hospital for Epilepsy .. 381
West End Hospital for Diseases of the Nervous System Paralysis, and Epilepsy 381
Bethlem Royal Hospital 381
Hospital for Consumption and Diseases of the Chest Brompton 381
City of London Hospital for Diseases of the Chest .. 381
Royal Hospital for Diseases of the Chest 382
Mount Vernon Hospital for Consumption 382
Queen Charlotte's Lying in Hospital 382
Hospital for Women 382
Samaritan Free Hospital for Women 382
East London Hospital for Children and Dispensary for Women 382
Hospital for Sick Children 383
Evelina Hospital for Sick Children 383
Victoria Hospital for Children 383
Queen's Hospital for Children 383
Belgrave Hospital for Children 383
Alexandra Hospital for Children with Hip Disease... 383
Royal London Ophthalmic Hospital 383
Royal Westminster Ophthalmic Hospital 384
Royal Eye Hospital. 384
Central London Ophthalmic Hospital 384
Hospital for Diseases of the Throat. 384
Central London Throat and Ear Hospital 384
Metropolitan Ear Nose and Throat Hospital 384
Royal Ear Hospital 384
St. Mark's Hospital for Cancer Fistula, and Other Diseases of the Rectum 384
St Peter's Hospital for Stone and other Urinary Diseases 385
St John's Hospital for Diseases of the Skin 385
London Lock Hospital and Rescue Home 385

English Provincial Ancillary Schools and Hospitals:

Bath Royal United Hospital.. 385
Bedford County Hospital .. 385
Bradford Royal Infirmary 385
Royal Sussex County Hospital 385
Kent and Canterbury General Hospital 385
Derbyshire Royal Infirmary 386
Royal Devon and Exeter Hospital 386
West of England Eye Infirmary 386
Gloucestershire Royal Infirmary and Eye Institution 386
North Staffordshire Infirmary 386
Hull Royal Infirmary... 386
Leicester Royal Infirmary 386
Northampton General Hospital 386
Norfolk and Norwich Hospital 387
Nottingham General Hospital 387
South Devon and East Cornwall Hospital 387
Royal Hospital Portsmouth. 387
Royal Berkshire Hospital .. 387
Salisbury General Infirmary 387
Royal Salop Infirmary 387
Royal South Hants and Southampton Hospital 387
Staffordshire General Infirmary 387
Royal Hants County Hospital 387
Wolverhampton and Staffordshire General Hospital 387
Worcester General Infirmary 388
York County Hospital 388

II.—SCOTLAND

The Universities.

University of Edinburgh .. 388
School of Medicine of the Royal Colleges 388
Royal Infirmary 389
Royal Hospital for Sick Children 390
Eye Ear and Throat Infirmary 390
University of Glasgow .. 390
Anderson College of Medicine 391
St. Mungo's College and Glasgow Royal Infirmary .. 391
Glasgow Western Medical School 391
Queen Margaret College .. 391
Royal Infirmary 391
Glasgow Western Infirmary.. 392
Royal Hospital for Sick Children 392
Glasgow Ophthalmic Institution 392
Glasgow Eye Infirmary 393
Glasgow Ear Nose and Throat Hospital.... 393
University of St. Andrews (United College St. Andrews and University College Dundee) 393
University College .. 393
Royal Infirmary 393
University of Aberdeen .. 394
Aberdeen Royal Asylum. 394

Scottish Medical Corporations Granting Diplomas

Royal Colleges of Physicians and Surgeons of Edinburgh and Royal Faculty of Physicians and Surgeons of Glasgow 394
Royal College of Physicians of Edinburgh the Membership and Fellowship 395
Royal College of Surgeons of Edinburgh the Fellowship 395
Royal Faculty of Physicians and Surgeons of Glasgow 395

Scottish Provincial Ancillary Schools and Hospitals 395

III.—IRELAND

The Universities

University of Dublin (Trinity College) 395
National University of Ireland. 396
University College Dublin 396
University College Cork .. 397
University College, Galway 397
Queen's University of Belfast 397

Irish Medical Corporations Granting Diplomas.

Royal College of Physicians of Ireland 400
Royal College of Surgeons in Ireland 400
Royal College of Physicians of Ireland and Royal College of Surgeons in Ireland. 401
Royal College of Surgeons in Ireland (Schools of Surgery) .. 401
Apothecaries Hall of Ireland 401

Hospitals affording Practice recognised by the Irish Universities and Corporations

Adelaide Medical and Surgical Hospital 402
Coombe Lying in Hospital and Guinness Dispensary for the Treatment of Diseases Peculiar to Women 402
Sir Patrick Dun's Hospital 402
Jervis-street Hospital 402
Mater Misericordiæ Hospital 402
Meath Hospital and County Dublin Infirmary.. .. 403
Mercer's Hospital.... 403
National Maternity Hospital 403
Richmond Whitworth and Hardwicke Hospitals 403
Rotunda Hospital 403
Royal City of Dublin Hospital 403
Royal Victoria Eye and Ear Hospital 403
Dr Steevens Hospital 403
St. Vincent's Hospital and Dispensary 403

PUBLIC SERVICES

The Colonial Medical Service... 408

DENTAL SURGERY

The Registering Bodies in Dentistry 408
Teaching Institutions in Dentistry 409

THE WAR

The Casualty List 413
Deaths among the Sons of Medical Men 413
The Honours List 413

CORRESPONDENCE.

Voluntary Hospitals and the Spirit Duty (Mr F A Hocking) 414

MEDICAL NEWS

The Mesopotamia Inquiry 414
The Indian Medical Service.. 414
Metropolitan Asylums Board Diploma in Public Health.. 414

PARLIAMENTARY INTELLIGENCE.

Notes on Current Topics 415
House of Commons 415

Births Marriages and Deaths.. 415
Manager's Notices 415
Acknowledgment of Communications received 416

FOR INDEX TO ADVERTISEMENTS SEE PAGES 2 & 3

INDEX

MEDICAL AND OTHER BOOKS AND PUBLICATIONS

PAGE

APPLETON & CO —
Appleton s Medical Dictionary 18
Behan—Pain 19
Cannon—Bodily Changes in Pain. 19
Eycleshymer—Cross Section Anatomy 19
Foote—Minor Surgery 18
Gwathmey and Baskerville—Anesthesia 18
Hall—Borderline Diseases 19
Jordan and Ferguson—Histology 18
Kelly and Burnam—Diseases of the Kidneys &c 19
Kolle—Plastic and Cosmetic Surgery 18
Osler Sir William—Medicine 18
Thompson—Occupational Diseases 19

ARNOLD —
Andrews—Midwifery for Nurses 23
Dixon—Manual of Pharmacology 23
Hill &c.—Further Advances in Physiology 23
Howard—The Practice of Surgery 23
" Surgical Nursing and the Principles of Surgery for Nurses 23
Hutchison—Lectures on Diseases of Children 23
Keith—Human Embryology and Morphology 23
Parsons and Wright—Practical Anatomy 23
Pembrey &c.—Practical Physiology 23
Savill—A System of Clinical Medicine 23
Sibley—Treatment of Diseases of the Skin Cover 1
Stewart—Nervous Diseases 23
Text Book of General Pathology 23
Woodwark—Medical Nursing 23

BAILLIERE, TINDALL & COX :—
Bigg—Indigestion 26
Blumfeld s Anæsthetics Cover 1
Books for Students Cover 1
Brown s Physiological Principles in Treatment 50
Buchanan s Anatomy 9
Fitzwilliams Operative Surgery 9
French s Medical Laboratory Methods and Tests 50
Gardner's Surgical Anæsthesia 50
Gemmell s Chemical Notes and Equations 50
Green s Pathology 9
Ince s Latin Grammar of Pharmacy 50
Lake's Diseases of the Ear 50
Lamb s Nose, Throat and Ear 9
Lockhart-Mummery's After Treatment of Operations 50
McCaw s Diseases of Children 50
Macewen s Surgical Anatomy 9
Mathews Physiological Chemistry 50
May and Worth s Diseases of the Eye 9
Monro s Medicine 9
Muter's Analytical Chemistry 50
Richards Practical Chemistry 50
Rose & Carless Surgery 9
Smallwood s Text Book of Biology 50
Stewart s Physiology 9
Student s Aids 50
Whitla s Materia Medica 9
Whitla s Dictionary of Treatment 50
Williams' Minor Maladies and their Treatment 50

BALE, SONS & DANIELSSON —
Brown—Amœbic or Tropical Dysentery 8
Calmette—Venoms &c 8
Case Sheets 8
Clinical Figures 8
Cochrane & Sprawson—A Guide to the Use of Tuberculin 8
Daniels—Studies in Laboratory Work 8
Daniels—Tropical Medicine &c 8
Defensive Ferments of the Animal Organism 8
Fantham Stephens & Theobald—The Animal Parasites of Man 8
Goodwin—Field Service Notes 8
Hart—How to Cut the Drug Bill 8
Infants Weight Charts 8
Lenzmann—Emergencies in Medical Practice 8
Local Anæsthesia 8
McCarrison—Endemic Goitre 8
Medical Certificates of Incapacity for Work 8
Moullin—When to Operate in Inflammation of Appendix Cover 1
Römer—Epidemic Infantile Paralysis 8
Sanatorium Chart 8
Simpson—Principles of Hygiene 8
Temperature Charts 8

BELL & SONS —
Blake—Tuberculosis 5
Bragg and Bragg—X Rays &c. [illegible]
Colwell and Russ—Radium &c [illegible]

BLANCHARD COMPANY —
Faulkner—Tonsils and Adenoids 22
" The Tonsil & its Uses 22

CASSELL & CO :—
Bruce & Dilling—Materia Medica and Therapeutics 12
Candy—A Manual of Physics for Medical Students 12
Gould Sir A. P., and Gould E. P.—Elements of Surgical Diagnosis 12
Herman—Difficult Labour 12
Herman and Maxwell—Diseases of Women 12
Herman and Maxwell—Student s Handbook of Gynæcology 12
Hutchison and Rainy—Clinical Methods 12
Luff and Candy—A Manual of Chemistry 12
Manson Sir Patrick—Tropical Diseases 12
Morris, Sir Malcolm and Dore—Diseases of the Skin 12
System of Surgery 12
Thomson H C—Diseases of the Nervous System 12
Thomson Sir StClair—Diseases of the Nose and Throat 12
Treves Sir F—Surgical Applied Anatomy 12
Treves, Sir F & Hutchinson—Student s Handbook of Surgical Operations 12
Whitelegge Sir A., and Newman Sir G—Hygiene and Public Health 12
Yeo Crawfurd and Buzzard—A Manual of Medical Treatment.. 12

CHURCHILL, J & A. :—
Berkeley and Bonney—Difficulties and Emergencies of Obstetric Practice 5
Berry Berry Bles e, &c.—A Red Cross Unit in Serbia 5
Cushny—Pharmacology and Therapeutics 5
Eden—Manual of Midwifery 5
Eden and Lockyer—Gynæcology 5
Frazer—Anatomy of the Human Skeleton 6
Hardwicke—Sight Testing Made Easy 5
Hewlett—Manual of Bacteriology 6
" Pathology General and Special 6
Hewlett—Serum and Vaccine Therapy 6
Hull—Surgery in War 7
Jellett—Practice of Gynæcology 5
" Short Practice of Midwifery 6
Latham and Torrens—Medical Diagnosis 6
Lelean—Sanitation in War 7
Morris s Human Anatomy 6
Panton—Clinical Pathology 6
Parsons—Diseases of the Eye 6
Pollard & Davies Minor Surgery and Bandaging 7
Rowlands and Turner—Operations of Surgery 7
Sequeira—Diseases of the Skin 5
Squire s Companion to the British Pharmacopœia Cover 1
Squire s Companion to the British Pharmacopœia 27
Starling—Principles of Physiology 6
Taylor—Practice of Medicine 6
Taylor—Operative Surgery 7
The Great Books of To-day Cover 1
Thorne Bezly—Schott Methods of Treatment of Chronic Diseases of the Heart 23
Warren—Text Book of Surgery 7
White—Materia Medica 5

CONSTABLE & CO —
Battle—The Acute Abdomen 25
" Surgery of Diseases of the Appendix Vermiformis 25
Shennan—Post Mortems and Morbid Anatomy 2[illegible]

HEINEMANN —
Arthur & Muir—X Ray Work [illegible]
Barnett—Text Book of Surgery [illegible]
Beattie & Dickson—Special Pathology [illegible]
" General Pathology [illegible]
Bing—Nervous Diseases [illegible]
Bland-Sutton & Giles—Diseases of Women [illegible]
Operative Dentistry [illegible]
Thorington—Refraction of the Human Eye [illegible]
Wilson—Text Book of Hygiene [illegible]

HILTON & CO —
Ghosh Materia Medica [illegible]
Ghosh & Das—Hygiene and Public Health [illegible]

KIMPTON :—
Colbeck and Chaplin—Science and Art of [illegible] [illegible]
Forrest—Eye Nose Throat and Ear [illegible]
Hare—Diagnosis [illegible]
McMurrich—Manual of Human Embryology [illegible]
Morton—Text Book of Radiology [illegible]
Morton and [illegible]—[illegible] Medical Electricity [illegible]
Watson—Gonorrhœa [illegible]
Webster—Diagnostic Methods [illegible]

LEWIS & CO —
Bennett—Materia Medica, &c 10
Binnie—Operative Surgery 51
Books for the Student and Practitioner Cover 1
Brockbank—Heart Disease 10
Bruce—System of Radiography 11
Buxton—Anæsthetics their Uses and Administration 10
Carter—Elements of Practical Medicine 11
Coleman—Extraction of Teeth 10
Coleman and Hilliard—Anæsthetics in Dental Surgery 10
Davidson—Localization by X Rays and Stereoscopy 51
Delorme—War Surgery 51
De Swietochowski—Mechano Therapeutics 10
Gould—Practitioner's Medical Dictionary 11
Gould—A Pocket Medical Dictionary 11
Gould & Pyle s Pocket Cyclopedia of Medicine and Surgery 11
Ham—Handbook of Sanitary Law 11
Hellman—Amnesia and Analgesia in Parturition 11
Jones—Ionic Medication The Principles of the Method &c 51
Kenwood—Public Health Laboratory Work 10
Kettle—Pathology of Tumours 51
Lewers—Diseases of Women 10
Moullin—Enlargement of Prostate Cover 1
Oliver—Studies in Blood Pressure 51
Osler Sir William—Aequanimitas 11
Parkes & Kenwood—Hygiene and Public Health 10
Phillips—Amœbiasis and the Dysenteries 11
Powell Sir R. D & Hartley—On Diseases of Lungs &c Cover 1
Rawling—Landmarks and Surface Markings of the Human Body 11
Russ—A New Treatment for Gonorrhœa Cover 1
Shuttleworth and Potts—Mentally Deficient Children 51
Stevens—Medical Diagnosis 10
Stoddart—Mind and its Disorders 10
Swanzy's Handbook of Diseases of the Eye and their Treatment 51
Taylor—The Sanitary Inspector s Handbook .. 11

LIPPINCOTT CO —
Davis—Applied Anatomy 17
Dejerine & Gauckler—The Psychoneuroses 18
Emerson—Clinical Diagnosis 17
" Essentials of Medicine 17
Flagg—Art of Anæsthesia 17
Fuchs—Ophthalmology 18
International Clinics 16
Krehl—Clinical Pathology 17
Lippincott s New Medical Dictionary 18
Nicholson—Blood Pressure 16
Ortner—Internal Diseases 18
Roberts and Kelly—Fractures 15
Shears—Obstetrics 18
Von Fürth—Physiological and Chemistry of Metabolism 17
Wilson—Medical Diagnosis 17

LIVINGSTONE (EDIN) —
Beatson, Sir G T—Modern Wound Treatment, &c. 22
Buchanan—Forensic Medicine & Toxicology 22
Catechism Series 22
Craig—Posological Tables [illegible]
Fordyce—Hygiene of Infancy and Childhood .. 22
Fordyce—Care of Infant [illegible] 22
Gibbs—The Extraction of Teeth 22
Glaister—Medical Jurisprudence and Toxicology 22
Glaister—Public Health Hygiene for Students and Nurses 22
Glaister & Logan—Gas Poisoning 22
Glaister—Examination of the Urine [illegible]
Hewat—Examination of the Urine [illegible]
Hope Text Book of Public Health [illegible]
Jack—Wheeler s Handbook of Medicine 22
Macdonald—Student s Pocket Prescriber &c 22
McCutcheon—Principles of Agriculture 22
McKendrick—Back Injuries 22
" Malingering 22
Robertson & McKendrick—Public Health Law [illegible]
Skinner—Applied Anatomy [illegible]
Whitaker—Anatomy of the Brain &c [illegible]
Whitaker—Materia Medica Notes [illegible]
Whitaker—Surgical Anatomy [illegible]

LONGMANS GREEN & CO —
Bayliss—Principles of General Physiology 45
Bennett Sir Wm.—Massage and Movement in Recent Fractures Cover 1
[illegible]
Bessemer—[illegible] [illegible]
[illegible]—Practical Anatomy 15
Quain s Elements of Anatomy [illegible]
[illegible] [illegible]

MACMILLAN & CO :—
Adami & McCrae—Pathology [illegible]
Allbutt, Sir Clifford—Diseases of Arteries [illegible]
Haas—Laboratory Notes on Organic Chemistry [illegible]
Luciani—Human Physiology [illegible]
Mears—Treatment of Acute Infectious Diseases [illegible]
Milligan Sir W., and Wingrave—Diseases of the Ear [illegible]
Morse and Talbot—Diseases of Nutrition and Infant Feeding [illegible]
Parker and Parker—Elementary Course of Practical Zoology [illegible]
Strasburger &c—Botany [illegible]
Text Book of Embryology [illegible]
Zinsser—Infection and Resistance [illegible]
Zinsser &c—Laboratory Course in Serum Study [illegible]

MEDICAL PUBLISHING CO :—
Lane, Sir A.—Operative Treatment of Fractures [illegible]

MURRAY :—
Halliburton—A Handbook of Physiology [illegible]

NISBET & CO —
Bennett Sir Wm.—Injuries and Diseases of Knee-Joint Cover 1
Romer and Creasy—Bone setting &c Cover 1

SAUNDERS COMPANY :—
Anders and Boston—Medical Diagnosis 15
Ashton—Practice of Gynæcology.. 15
Bastedo—Materia Medica, &c. 15
Bergey—Principles of Hygiene 14
Böhm &c—Human Histology 15
Best Books for Students Cover 1
Bryan—Principles of Surgery 14
DaCosta—Modern Surgery 15
DaCosta—Physical Diagnosis 14
Dannreuther—Minor and Emergency Surgery 14
Davis—Manual of Obstetrics 15
Dercum—Mental Diseases 15
Drew—Invertebrate Zoology 15
Eyre—Bacteriological Technique 15
Gleason—Manual of Diseases of the Nose Throat, and Ear 15
Hirst—Obstetrics 14
Holland—Medical Chemistry and Toxicology 15
Howell—Physiology 15
Jordan—General Bacteriology 15
Kaplan—Serology of Nervous and Mental Diseases 15
Kyle—Diseases of the Nose and Throat 15
Mallory and Wright—Pathological Technique 15
Metheny—Dissection Methods and Guides 15
Ruhräh—Diseases of Children 15
Saunders Question Compends 14
Saxe—Examination of the Urine 15
Schamberg—Diseases of the Skin and the Eruptive Fevers 15
Stengel and Fox—Pathology 15
Stevens—Manual of the Practice of Medicine 15
Stiles—Nutritional Physiology 15
Thompson—Clinical Medicine 15
Wells—Chemical Pathology 15

SMITH, ELDER & CO —
Leftwich—Index of Symptoms [illegible]
St Bartholomew s Hospital Report [illegible]
Wilson—Early Diagnosis of Heart Failure and other Essays on the Heart and Circulation [illegible]

UNIVERSITY OF LONDON PRESS
Bidwell Minor Surgery [illegible]
Bigg Diseases of the Far [illegible]
Turnbull—Applied Pathology [illegible]
[illegible]—Manual [illegible] [illegible]
Evans—Diseases of the Skin [illegible]
Fox—Medical Hydrology [illegible]
Marshall Diseases of the Eye [illegible]
Stevens—Diseases of Women [illegible]
Turner and Catling—Treatment of [illegible] [illegible]
Whipham—[illegible] [illegible]
Wright Col. Sir A.—Wound Infections [illegible]

WRIGHT & SONS (BRISTOL) —
Barr—[illegible] [illegible]
British Journal of Surgery [illegible]
[illegible]—Text Book of Nervous Diseases [illegible]
[illegible]—Synopsis of Surgery [illegible]
[illegible] [illegible]
[illegible]—Modern Methods of Treatment [illegible]
[illegible]—[illegible] [illegible]
[illegible] [illegible]

MEDICAL LIBRARIES &c —
[illegible]
[illegible]
[illegible]
[illegible]—Translated to Hermes [illegible]

THE LANCET.

No 4853. LONDON, SATURDAY, SEPTEMBER 2, 1916 Vol. CXCI

CONTENTS.

The whole of the literary matter in THE LANCET is copyright

AN EXPERIMENTAL STUDY of Latent Tuberculosis. By CHUNG YIK WANG M D B.Sc. Carnegie Research Scholar formerly Mc Gunn Research Scholar (From the Royal College of Physicians Laboratory Edinburgh).. 417

ORIGINAL ARTICLES

The Diagnosis of the Enteric Fevers in Inoculated Individuals by the Agglutinin Reaction. By GEORGES DREYER, M.A. Oxon. M.D Copenhagen, Major R.A.M.C and E. W AINLEY WALKER, M.A. D M. Oxon, Captain O T C (From No — Station ary Hospital B E F and Department of Pathology, University of Oxford.) A Report to the Medical Research Committee 419

A Method of Drop-measuring Liquids and Suspensions. (Supp emental Notes and Notes on Applications) By R. DONALD B.Sc. N Z., D.P H. Oxf. (From the London Hosp.al Bacteriological Laboratory—Professor W BULLOCH, M.D Aberd., F R S) 423

A Note upon the Employment of Blood Transfusion in War Surgery By EDWARD ARCHIBALD M.D Major Canadian Army Medical Corps 429

Three Cases Illustrating the Functional Consequences of Head Injuries By T E HARWOOD B A. Oxon. M.B Ch.B Edin. 431

The Heart and Active Service. Treatment of Convalescent Soldiers. By H. J SEEUWEN, M D 432

The Use of Picric Acid in War Surgery By T F BROWN D S O M.R.C.S., L.R.C P Lond., Major Australian Army Medical Corps 433

The Shiah Pilgrimage and the Sanitary Defences of Mesopotamia and the Turco-Persian Frontier By F G OLEMOW M.D Edin., O.M.G —(*To be continued*) ... 441

CLINICAL NOTES

MEDICAL, SURGICAL OBSTETRICAL, AND THERAPEUTICAL

Empyema due to Infection by B Typhosus Para. A By C C WEEKS M.R.C.S L R.C.P Lond Temp Capt., R.A.M.C 433

The Surgical Treatment of the Erythema Induratum of Bazin. By EMMANUEL KONDELEON M.D 434

A Case of Hereditary Syn dactyly By W E LE GROS CLARK.—(*Illustrated*)..... 434

REVIEWS AND NOTICES OF BOOKS

Cerebrospinal Fever By Michael Foster M.A. M.D Cantab, Captain, R.A.M.C (T.F), and J F Gaskell M A. M.D Cantab Captain, R.A.M C (T F) 435

A Laboratory Course in Serum Study By Hans Zinsser M.D J S Hopkins M.D and Reuben Ottenberg M.D 435

Discovery: The Spirit and Service of Science By R. A. Gregory 435

The Medical Annual 1916 ... 436

The Story of a Red Cross Unit in Serbia. By James Berry B S Lond., F R.C S Eng F May Dickinson Berry M D B S Lond W Lyon Blease, LL.M and other Members of the Unit 436

The Book of Sorrow By Andrew Macphail 436

NEW INVENTIONS

A "Draw-over" Ether Inhaler —(*Illustrated*) 436

LEADING ARTICLES.

ECONOMY AND PUBLIC HEALTH 437

INSTRUCTION IN MEDICAL ETHICS 438

ANNOTATIONS

The Prevention and Treatment of Venereal Diseases 439

Vital Statistics of the Army a Century Ago 439

Experiments on Living Animals 440

State Control of Liquor Trade. 440

The New Post Office Regulations for Pathological Specimens.. 440

SPECIAL ARTICLES

The Central Council for District Nursing in London 443

The Services 444

VITAL STATISTICS:

Health of English Towns ... 445

Health of Scotch Towns .. 446

Health of Irish Towns.. 446

CORRESPONDENCE.

The Treatment of Infected Suppurating War Wounds (Dr Louisa Garrett Anderson) 447

Immobility After Joint Injury (Sir John Collie) 447

A Serious Flaw in the Retail Distribution of Milk (Dr David Nabarro) 448

The Effect of Fresh Human Blood Serum on Artificial Media (Dr G T Western, Dr Ludwik Rajchman) 448

The Psycho-pathology of War Neuroses (Captain M. D Eder, R.A M C) 448

The Effect of Ferrivine and Intramine on Syphilis (Mr J E R. McDonagh) 449

Holidays for Doctors (Dr A. Bygott) 456

Pemmican (Dr J Brindley James) 456

Longevity among Great Men .. 456

OBITUARY

Thomas Gregor Brodie F R.S Professor of Physiology in Toronto University 449

John William Hills M.B Ch B Vict. and Liverp 449

Charles Sage Ticehurst, M.R.C.P. Edin., M.R.C S Eng 449

THE WAR

The Casualty List 450

The Honours List 450

Deaths among the Sons of Medical Men 452

Height and Weight Standards and Tests for Recruits 453

The Wounded Allies Relief Committee 453

Military Decorations 453

War Hospital Magazines 453

OBITUARY OF THE WAR

Owen Herbert Peters M.D, B S Melb, D P H. Captain, R.A.M C —(*With Portrait*) 451

Charles Patrick Kelly B A., M B, B Ch. Dub Lieutenant, R.A.M.C —(*With Portrait*) 451

John Leslie Green, V C, M R C S Eng. Captain, R.A.M C —(*With Portrait*) 451

James Blain Haverson, M.D Manitoba Lieutenant, R.A.M C —(*With Portrait*) 451

Raymond John Jones M.B, Ch B Vict. Lieutenant, R.A M C —(*With Portrait*) 452

Julius Henry Bellby, M.B C M Edin. Captain R.A.M.C —(*With Portrait*) 452

Geoffrey Richard Heard M.R.C S Eng Captain, R.A.M.C —(*With Portrait*) 452

MEDICAL NEWS

Relief Work in Armenia ... 419

Anthrax in the Shaving Brush 441

The Care of Teeth in Schools ... 434

French Honour for Birmingham Doctor 438

Smiley Cottage Hospital Larne 443

Poliomyelitis in Aberdeen and District 453

A New Hospital for Paralysed and Disabled Officers 453

Society of Apothecaries of London: Pass list 454

Royal Medical Benevolent Fund 454

A Generous Legatee 454

Royal Institute of Public Health 454

Health of Belfast 454

Medical Sickness and Accident Society 454

The Order of the Hospital of St. John of Jerusalem in England 455

School of the Pharmaceutical Society of Great Britain .. 455

Appointments 455

Vacancies 455

Births, Marriages, and Deaths.. 455

Notes, Short Comments, and Answers to Correspondents.. 456

Medical Diary 457

Meteorological Readings 457

Books &c. received 458

Acknowledgment of Communications received 458

FOR INDEX TO ADVERTISEMENTS SEE PAGE 2.

JOHN BALE, SONS & DANIELSSON, LTD.

EPIDEMIC INFANTILE PARALYSIS (Heine-Medin Disease). Translated by H RIDLEY PRENTICE M R C P Royal 8vo Cloth With 57 Illustrations Price 7s 6d. net, postage 5d.

THE ANIMAL PARASITES OF MAN By H B FANTHAM M A. Cantab, J W W STEPHENS, M D Cantab, and F V THEOBALD, M A Cantab Royal 8vo Cloth. Pp 832. 423 Illustrations Price 45s net, postage 9d. inland.

A HANDBOOK OF PRACTICAL PARASITOLOGY. Translated by LINDA FORSTER Royal 8vo Pp 208 + viii Cloth Price 10s 6d. net, postage 6d

DEFENSIVE FERMENTS OF THE ANIMAL ORGANISM AGAINST SUBSTANCES OUT OF HARMONY WITH THE BODY Translated by J O GAVRONSKY, M R C S, M D, and W F LANCHESTER M A Crown 8vo Price 7s 6d. net, postage 4d

83, 85, 87, 89, 91, GREAT TITCHFIELD STREET, LONDON, W.

INDEX

MEDICAL AND OTHER BOOKS AND PUBLICATIONS

PAGE

BAILLIERE, TINDALL & COX:—
Bigg—Indigestion Cover 1
Eccles—Hernia its Etiology Symptoms and Treatment Cover 1
Freyer—Enlargement of the Prostate Cover 1
Freyer—Surgical Diseases of the Urinary Organs Cover 1
Gardner—Manual of Surgical Anæsthesia Cover 1

BALE, SONS & DANIELSSON:—
Epidemic Infantile Paralysis 1
Defensive Ferments of the Animal Organism 1
Fantham, Stephens & Theobald—The Animal Parasites of Man 1
Handbook of Practical Parasitology 1
Moullin—When to Operate in Inflammation of the Appendix Cover 1
Worth—Squint its Causes Pathology and Treatment Cover 1

P BLAKISTON'S SON & CO —
The New United States Pharmacopœia .. 5

CHURCHILL, J & A.—
Hare—Alcoholism: Its Clinical Aspects and Treatment Cover 1

FROWDE AND HODDER & STOUGHTON:—
Waring—Surgical Diseases of the Gall Bladder &c 6
Waring—Manual of Operative Surgery 6

GRIFFIN & CO —
Donald—An Introduction to the Study of Midwifery 4
Myers and Firth—Practical Elementary Chemistry for Medical and other Students 4

KIMPTON —
Ashhurst s Surgery its Principles and Practice 5
Dalton s Venereal Diseases 5
Jackson s Skin Diseases 5
McMurrich s Human Embryology 5
Morton s Text Book of Radiology 5
Morton & Cumberbatch s Medical Electricity 5
Niles Digestive Diseases 5

KIMPTON—(Continued)
Roth—Notes on Military Orthopædics Cover 1
Watson—Gonorrhœa 5
Webster's Diagnostic Methods 5

LEWIS & CO —
Martindale and Westcott—The Extra Pharmacopœia 4
Moullin—Enlargement of Prostate Cover 1
Russ—A New Treatment for Gonorrhœa Cover 1

LONDON PUBLICITY CO —
Reinhardt Rutland—Faith, Medicine and the Mind Cover 1

LONGMANS, GREEN & CO —
Watson Williams—Rhinology Cover 1

MEDICAL PUBLISHING CO :—
Lane Sir A —Operative Treatment of Fractures Cover 1

NISBET & CO —
Romer and Creasy—Bonesetting and the Treatment of Painful Joints Cover 1

SAUNDERS COMPANY:—
Elsberg—Surgery of Spinal Cord 1
Elsberg's Surgery of the Spinal Cord Cover 1
Mayo &c —Mayo Clinic Papers of 1915 1
Smithies and Ochsner—Cancer of Stomach 5

THE LANCET —
Brandy 4
Difficulties under the Infectious Disease (Notification) Act Cover 1

WRIGHT & SONS (BRISTOL):—
Index of Treatment 5

MEDICAL LIBRARIES &c :—
Behnke—Stammering &c.. Cover 1
Box 23 Edinburgh — Bound Volumes of THE LANCET 0
Deighton, Bell & Co —New or Second hand Books 6
Ketley—Stammering Cover 1
Kimpton—Journal of Pathology and Bacteriology wanted Cover 1
Matthews—Wood Application of Trusses to Hernia Cover 1

OFFICIAL AND GENERAL ANNOUNCEMENTS

ASSISTANCIES MEDICAL 47

ASYLUMS, HOMES, &c :—
Abbotswood House, Cinderford 44
Ashwood House, Kingswinford 41
Barnwood House Hospital 42
Bishopstone House Bedford 41
Brunton House Lancaster 46
Camberwell House Peckham road 44
Cheadle Royal 42
Clarence Lodge, Clapham Park 41
Colthurst House School, Alderley Edge 41
Coppice, The Nottingham 42
Dalrymple House Rickmansworth 44
David Lewis Colony Alderley Edge 41
Duff House Banff 45
Edgar Allen Institute, Sheffield 41
General Manager, Craven-street 46
Ghyllwoods 41
Grove House Church Stretton 42
Grove The Catton, Norwich 42
Haslemere Nursing Home 46
Haydock Lodge Newton le-Willows 43
Heigham Hall, Norwich 42
Home for Epileptics Maghull 41
Invernith Sanatorium, Colinsburgh 44
Littleton Hall Brentwood 46
London Fever Hospital 42
Malling Place Kent 42
Melbourne House Leicester 44
Mendip Hills Sanatorium 45
Moat House Tamworth 42
Mundesley Sanatorium Norfolk 44
Newmains Retreat Lanarkshire.. 44
New Saughton Hall Midlothian 43

ASYLUMS—(Continued)
Nordrach-on Dee, Banchory 45
Northumberland House Finsbury Park 43
Northwoods House, Winterbourne 43
No 102, L.O., Strand 46
No 412, L.O., Strand 45
Otto House West Kensington 41
Peckham House 43
Pendyffryn Hall Sanatorium Nordrach in Wales 45
Plympton House Plympton 42
Portsmouth Corporation Mental Hospital 41
Royal Earlswood Institution for Mental Defectives 43
St. Andrew's Hospital, Dollis Hill 45
St Andrew's Hos., Northampton. 41
St. George s Retreat, Burgess Hill 41
St. Luke s Hos. for Mental Diseases 41
Springfield House Private Asylum Bedford 41
Stretton House Church Stretton. 4[illegible]
The Grange near Rotherham 42
Vale of Clwyd Sanatorium 45
Warneford Asylum, Oxford 41
Westcroft, Ilkley 46
Wye House Buxton 42

FINANCIAL, &c.:—
Equitable Reversionary Interest Society 33

HEALTH RESORTS BATHS &c.:—
Alexandra Therapeutic Institute 46
Caterham Sanitarium 46
Droitwich Brine Baths 45
Smedley's Matlock 46

HOSPITAL, INFIRMARY SANATORIUM, &c VACANCIES 45-47

HOUSE & ESTATE AGENTS 49

LIFE & FIRE ASSURANCES &c :—
General Life Assurance Co 33
Medical Sickness and Accident Society 25
National Provident Institution 33
Prudential 39

MEDICAL ACCOUNTANTS, &c :—
Turner 45

MEDICAL AGENTS 42

MEDICAL SCHOOLS:—
(LONDON)
London School of Clinical Med 35
St Thomas s Hospital Medical School 33
University College Hosp Medical School .. 33
University of London, University College 37
West London Post-Graduate Coll. 35
(PROVINCIAL, &c)
University of Bristol 3
University of Leeds 39
University of Durham College of Medicine Newcastle-upon Tyne 3
University of Sheffield 37

NURSES ASSOCIATIONS —
Army and Navy Male Nurses Co-operation 23
Co-operation of Temperance Male and Female Nurses 40

NURSES ASSOC (Continued)
General Nursing Association 43
Hospital for Sick Children 43
London Nurses Association 43
London Temperance Nurses Co-operation 43
Male Nurses Temperance Co-operation 43
Mental Nurses Association 37
Mental Nurses Co-operation 43
Nurses Association 33
Nurses Co-operation 4
Registered Nurses Society 43
St John s House 43
St Luke[illegible] 43
Temperance Association of Male Nurses Ltd. 43

OFFICIAL NOTICES —
City of London Lying-in Hospital, 37
College of Preceptors 5
Incorporated Society of Trained Masseuses 33
London Lock Hospital 34
London School of Tropical Medicine 37
Queen Charlotte s *Lying in Hosp* 3
University of Bristol 33
University of Cambridge 37

PARTNERSHIPS & PRACTICES 43

RAILWAY & STEAMSHIP CO.'S :—
New Zealand Shipping Co 33

***TUTORS & LECTURERS* —**
Medical Correspondence College 33
Weymouth 33

TRADE AND MISCELLANEOUS ADVERTISEMENTS

AMBULANCES —
St. John Ambulance — Invalid Carriages 7

ANATOMICAL MECHANICIANS —
Duncan—Artificial Limbs 25
Grossmith s Artificial Eyes Legs &c 6

BOTTLE MERCHANTS —
Isaacs 8

CARRIAGES, MOTORS &c.—
Armstrong—Liveries 7
St. Martin s Motor Works—Tyres and Accessories 7
Stelastic Tyres Ltd.—Stelastic Shrouded Steel Studded Tyre 7

CHEMISTS & DRUGGISTS:—
Allen & Hanburys—
Byno Chrismol &c. 21
Anglo-French Drug Co —
Neocaine-Surrenine 58
Antikamnia Chemical Co —
Antikamnia Tablets 0
Antiphlogistine 18
Battley & Watts—
Battley's Liquors 12
British Drug Houses Ltd — Cover iv
[illegible]ntramine iv
Ferrivine
British Oxygen Co —
Oxygen 31
Bullock & Co —
Pepsina Porci &c 31
Burroughs Wellcome & Co.—
Wellcome Brand Antistreptococcus Serum Polyvalent, &c 23
Christy & Co —
Glyco-Thymoline 22
Ergapiol
Duncan Flockhart & Co —
Tuberculins, Vaccin[illegible] [illegible]

CHEMISTS—(Continued)
Erasmic Co.—Kin ol Medicated Toilet Soap 32
Fairchild Bros & Foster—
Zymine Peptonising Tubes 19
Fassett & Johnson—
Emol Keleet 50
Gale & Co —Compound Syrup of the Glycerophosphates, &c. 33
Heppells—Urodonal 17
Huggins & Co —
Ozone Paper for Asthma 34
Lambert Pharmacal Co —
Listerine 25
Maltine Manufacturing Co —
Maltine 24
Martindale—
Emetine-Bismuth Iodide 12
Newbery & Sons—
Pulvis Jacobi Ver 27
New York *Pharmaceutical Co* —
Hayden s Viburnum Compound 22
Parke Davis & Co.—
Antidiphtheria Serum &c [illegible]
Raimes & Co.—Slinger's Nutrient Suppositories .. 21
Whiffen & Sons—*Emetine* 21
Wilcox, Jozeau & Co —Arhéol

DISINFECTANTS—
Allen & Hanburys—
Dioxogen 21
Boots Pure Drug Co —
Chloramine-T 14
Chloramine T Gauze 14
Condy's Fluid 22

FOODS:—
Benger's Food 13
Blatchley's Diabetic Preparations [illegible]
Bovril[illegible]—*Del[illegible] Chocolates* 33
Brand & Co —Meat Juice 12
British Drug Houses— Cover iii
Hemoren

FOODS—(Continued).
Cadbury's Cocoa 25
Callolin Co —Callolin 33
Callard & Co —Diabetic Foods 33
Carnrick & Co —
Liquid Peptonoid &c 4
Fry's Malted Cocoa Cover iii
Hewlett & Son—Virapho 15
Horlick s Malted Milk Co —
Malted Milk 11
Manhu Food Co —
Manhu Diabetic Foods 33
Pan Yan Pickle 33
Thomson & Co.—Pure China Tea.. 4
Valentine s Meat Juice Cover ii
Van Abbott & Sons—Gluten Flour 32
Wander Ltd.—Ovaltine 1

FURNITURE, &c :—
Carter—Furniture for Invalids and Hospital Supplies 25

HOSPITALS (ISOLATION):—
Humphreys Limited—
Mobile Hospital Buildings & 5

MED & SURG APPLIANCES —
Bailey & Son—Burlington Bel[illegible] 8
Davis—Lukens Sterile Cat[illegible] 6
Down Bros.—Differential S[illegible]scope 1
Frank—Surgical and Orthopædic Appliances &c. 7
Hearson & Co —
Hearson s Specialities 6
Millikin & Lawley—
O[illegible] &c. Cover ii
Ro[illegible]son & Sons—Gamgee T[illegible] 5
St[illegible] & Co—Leicester [illegible] 1
[illegible] Paris Bandages 7
Salmon Ody L[illegible]—Trus[illegible] 3
Timpson & Co —Th[illegible]
Zeal—[illegible] C[illegible] Th[illegible]me[illegible]

MINERAL WATERS &c :—
Cheltenham Natural Aperient Water 33
Dal Mar—Villacabras 33
Dal Mar—Vittel 33
Hooz & Son—
Aerated Lime Water 4
Vichy-Célestins ..

MOTOR SPIRIT:—
G[illegible] Co —Carburine Motor Spirit Cover ii

TAILORS BOOTMAKERS &c :—
Burberrys—
The Burberry 11
Harry Hall—Service Dress 7

TOBACCO CIGARS, &c :—
Player & Sons—
Perfectos Cigarettes 34

TYPEWRITING &c.—
Yost Typewriter Co —Yost 5

VACCINE LYMPH —
Chambers's Calf Lymph 33
H[illegible] Lehmann Pure Animal Calf Lymph 33
Jenner In[illegible] for Calf Lymph.. 33

X RAY &c., APPARATUS :—
M[illegible]—
The Gal[illegible] Cover ii

MISCELLANEOUS —
[illegible] X Ray &c[illegible] 43
Gr[illegible] in Cal[illegible] 43
No 111 L.O., [illegible] 43
No 117 L.O., [illegible] 43

THE LANCET.

No 4867 LONDON, SATURDAY, DECEMBER 9, 1916 Vol CXCI

CONTENTS.

The whole of the literary matter in THE LANCET is copyright

SOME PRACTICAL OBSERVATIONS on the Injuries of War By A. MARMADUKE SHEILD M.B Cantab F.R.C.S.E Consulting Surgeon to St. George's Hospital and to the Royal Waterloo Hospital for Children and Women Temporary Surgeon to No 5 V.A.D Hospital Exeter —(*To be concluded*) 967

ORIGINAL ARTICLES

An Investigation into the Agglutinating Properties of Certain Sera against *B Typhosus* and *B Enteritidis* Gaertner (Delépine 7160) By THOMAS T. O FARRELL, F.R.C.S Irel D.P.H. First Assistant in Pathology University College Dublin (N.U.I.); Pathologist, St Vincent's Hospital Dublin. (From the Pathological Laboratories, University College, Dublin)—(*Illustrated*) 970

Chronic Gonorrhœa Cured by Electrolysis By CHARLES RUBS M.B Lond M.R.C.S (From the Electrical Department of the Lock Hospital Dean street, London, W.)... 977

A Case of a Bullet in the Sphenoidal Sinuses Removal through the Left Nostril. By H. ELWIN HARRIS F.R.C.S Eng Captain, R.A.M.C (T.) Surgeon Beaufort War Hospital Bristol.—(*Illustrated*) 978

CLINICAL NOTES

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL

Retained Placenta in a Rudimentary Horn of the Uterus. By M C S LAWRANCE M.B Ch.B Vict &c.... ... 979

A Case of Congenital Absence of Nails. By BERNARD O NEILL B.A. Cantab., M.R.C.S L.R.C.P Lond.—(*Illustrated*) 979

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE:
SECTION OF MEDICINE — Œsophagectasia Acquired Syphilis of the Lungs 980

REVIEWS AND NOTICES OF BOOKS

The Statutes Regulations and Orders relating to National Health Insurance 981

The Panel Doctor: His Duties and Perplexities. By T M. Tibbetts, M D Lond M.R.C.S Eng L.R.C.P Lond. D.P.H 981

The Art of Anæsthesia. By P J Flagg M.D..... .. 982

A Handbook of Colloid Chemistry By Dr Wolfgang Ostwald First English edition. Translated from the third German edition by Dr Martin H Fischer with the assistance of Ralph E. Oesper Ph D and Louis Berman, M D 982

NEW INVENTIONS

An Improved Type of Needle for Lumbar Puncture (Dr R. Donaldson) —(*Illustrated*) .. 982

LEADING ARTICLES

THE COMMITTEE OF REFERENCE OF THE ENGLISH ROYAL COLLEGES AND THE PROBLEM OF THE DISABLED SOLDIER.. 983

THE METROPOLITAN WATER SUPPLY AND THE WAR: CHLORINATION ADOPTED..... 984

ANNOTATIONS

The Department of Scientific and Industrial Research 985

The Mental Strain of Internment 985

The Whipping Craze..... 985

Infantile Mortality in British Columbia 986

The Medical Directory..... 986

THE GENERAL MEDICAL COUNCIL.

Penal Cases 987

Straits Settlements Medical Qualification 987

Japanese Qualifications 987

Pharmacopœia Committee..... 988

Anatomy Acts Committee .. 988

Preliminary Examination in General Knowledge 988

Recommendations 988

Dental Education and Examination Committee 988

Public Health Committee 988

Apothecaries Hall of Ireland. 988

SPECIAL ARTICLES

Paris 988

The Control of Venereal Diseases: Some Practical Points in the Examination of Specimens for Diagnosis in Venereal Diseases —(*Concluded*) 989

The Services 991

VITAL STATISTICS:
Health of English Towns ... 991
Health of Scotch Towns..... 992
Health of Irish Towns ... 992

CORRESPONDENCE.

Spontaneous Burns" (Capt Martin M. Cruickshank R.A.M.C)..... 992

Rheumatoid Arthritis Apparently Cured by Auto" Counter Irritation (Mr O T. Griffiths) 993

The Library of the Royal College of Surgeons of England (Mr Percy Dunn).. 993

Scopolamine Morphine in Labour (Mr Ian Jefferiss)... 993

The Angle of the Dropping Pipette and a Method of Drop Measuring Liquids (Mr R. Donald)..... 994

Resident Medical Officers at Children's Hospitals (Mr K. S Bhat) 1000

OBITUARY

William Paul Swain F.R.C.S Eng Consulting Surgeon to the South Devon and East Cornwall Hospital 996

THE WAR

The Casualty List..... 994

Deaths among the Sons of Medical Men 994

Mentioned in Despatches 994

The Eye Risks of Munition Work 994

The Mobilisation of the Medical Profession..... 995

Accumulated Fatigue in Warfare 995

American Medical Experiences at the War 996

Recent Red Cross Work in Devonshire 996

The Crimes of Germany" 996

OBITUARY OF THE WAR:
Ian Macdonald Brown M.A Camb. M.R.C.S.E Capt R.A.M.C —(*With Portrait*) 995
James David Forrester M.D Ch.B Edin., Capt R.A.M.C —(*With Portrait*) 995

MEDICAL NEWS

The late Mr C D Rudd's Benefaction..... 999

Centenarians 999

Child-Welfare Work in Ireland 999

Literary Intelligence.. 999

Royal Medical Benevolent Fund 997

Royal Surgical Aid Society.. .. 997

Irish Nurses and the College of Nursing Limited... 997

The Mental After-Care Association.. 997

The L.M.S.S.A. Examination 997

Tuberculosis After-Care Cambridgeshire Association 997

PARLIAMENTARY INTELLIGENCE

Notes on Current Topics..... 993

House of Commons 993

Vacancies 999

Births Marriages and Deaths 999

Notes, Short Comments and Answers to Correspondents.. 999

Medical Diary..... 1001

Meteorological Readings..... 1001

Editorial Notices..... 1001

Manager's Notices 1002

Books, &c. received.. 1002

Acknowledgment of Communications received 1002

FOR INDEX TO ADVERTISEMENTS SEE PAGES 2 & 4.

JOHN BALE, SONS & DANIELSSON, LTD.,
PRINTERS, PUBLISHERS, & PROCESS BLOCK MAKERS

AMŒBIC OR TROPICAL DYSENTERY: Its Complications & Treatment.
By W CARNEGIE BROWN, M D Fcap 4to 271 + viii. pp Cloth. 7s 6d. net, postage 4d

"For the practising physician ..... the work cannot fail to prove of great service. .. We confidently recommend the volume to those who may be called upon to treat or prevent Amœbic Dysentery"—*The Lancet*
The book is well and clearly written and should prove a useful addition to the literature of this interesting and important subject."
—*British Medical Journal.*

Dr Brown's book should be read by all who have a special interest in this very important disease"—*Medical Press and Circular*
All interested will find it a most valuable work and since dysentery is so frequent in India we specially commend its pages to our practitioners."—*Indian Public Health and Medical Journal.*
"..... The book in its completeness and care of compilation reflects considerable credit on the writer"—*Midland Medical Journal*

83, 85, 87, 89 & 91, GREAT TITCHFIELD ST, OXFORD ST, LONDON, W.

INDEX

MEDICAL AND OTHER BOOKS AND PUBLICATIONS

PAGE

BAILLIERE TINDALL & COX—
Bigg—Indigestion 4
Blair Bell's The Sex Complex 3
Chapin & Pisek's Diseases of Children 3
Freyer—Enlargement of the Prostate Cover 1
Freyer—Surgical Diseases of the Urinary Organs Cover 1
Gardner—Manual of Surgical Anæsthesia Cover 1
Hayes—Intensive Treatment of Syphilis and Locomotor Ataxia by Ascheu Methods Cover 1
Jung—Analytical Physiology 3
Luys'—Gonorrhœa and its Complications 3
Macewen's Surgical Anatomy 3
Marshall—Syphilology and Venereal Disease 3
May & Worth's Eye 3
Rose & Carless Surgery 3
Rose & Carless Surgery Cover 1
Simon—Infection and Immunity.. 3

PAGE

BALE, SONS & DANIELSSON—
Brown—Amœbic or Tropical Dysentery 1

CHURCHILL, J. & A.—
Hare—Alcoholism Its Clinical Aspects and Treatment.. Cover 1
Hurry—Poverty and its Vicious Circles Cover 1
Medical Directory 1917 Cover 1
Squire's Companion to the British Pharmacopœia Cover 1
Thorne Bezly—Schott Methods of Treatment of Chronic Diseases of the Heart .. 4

FROWDE AND HODDER & STOUGHTON—
Waring—Surgical Diseases of the Gall Bladder Bile Ducts, and Liver .. Cover 1

KIMPTON—
Roth—Notes on Military Orthopædics Cover 1

PAGE

LEWIS & CO—
Medical Books 5
Powell Sir R. D., & Hartley—On Diseases of Lungs and Pleura including Tuberculosis and Mediastinal Growths Cover 1
Buss—A New Treatment for Gonorrhœa Cover 1
Scientific Books 5

LONGMANS GREEN & CO—
Kidd—Common Diseases of the Male Urethra. A Course of Lectures delivered at the London Hospital Cover 1
Kidd—Urinary Surgery " 1
Watson Williams—Rhinology a Text Book of the Diseases of the Nose and Accessory Sinuses Cover 1

MEDICAL PUBLISHING CO—
Lane, Sir A.—Operative Treatment of Fractures 5

PAGE

NISBET & CO—
Tomer and Creasy—Bonesetting and the Treatment of Painful Joints Cover 1

WRIGHT & SONS (Bristol)—
Porter—Diseases of the Throat Nose & Ear 5

MEDICAL LIBRARIES, &c.—
Baker—Books 4
Behnke—Stammering Lisping & Cleft Palate Speech 4
Ketley—Stammering 4
Kimpton—"Brain" wanted any volumes or numbers Cover 1
Lewis & Co's Medical and Scientific Circulating Library 5
Matthews—Wood Application of Trusses to Hernia 4
Scholl Mfg Co—Scientific Correction for Ailments of the Feet 34

OFFICIAL AND GENERAL ANNOUNCEMENTS

ASSISTANCIES MEDICAL 53 54

ASYLUMS, HOMES, &c.—
Abbotswood House, Cinderford 49
Ashwood House, Kingswinford 46
Barnwood House Hospital 47
Bishopstone House, Bedford 51
Brunton House Lancaster 51
Camberwell House Peckham road 49
Cheadle Royal 47
12 Cherington road Hanwell 51
Clarence Lodge, Clapham Park 51
Colthurst House School, Alderley Edge .. 51
Coppice, The Nottingham 47
Fairymple House Rickmansworth 49
David Lewis Colony Alderley Edge 51
Duff House Banff 50
General Manager Craven-street 51
Ghyllwoods Sanatorium 49
Grove House, Church Stretton 47
Grove, The, Catton, Norwich 47
Haslemere Nursing Home 51
Haydock Lodge, Newton-le-Willows 48
Heigham Hall Norwich 47
Homes for Inebriate Women 49
Littleton Hall, Brentwood 51
London Fever Hospital 47
Malling Place, Kent 47
Melbourne House Leicester 49
Mendip Hills Sanatorium 49
Moat House, Tamworth 47
Newmains Retreat, Lanarkshire 49
New Saughton Hall Polton Midlothian 48
Nordrach-on-Dee, Banchory 50
Northumberland House Finsbury Park 48
Northwoods House Winterbourne 48

ASYLUMS—(Continued)
Otto House, West Kensington 48
Peckham House 48
Pendyffryn Hall Sanatorium, Nordrach in Wales 49
Plympton House Plympton 47
Portsmouth Corporation Mental Hospital 51
Royal Earlswood Institution for Mental Defectives 48
St. Andrew's Hospital, Dollis Hill 51
St Andrew's Hospital, Northampton 47
St George's Retreat, Burgess Hill 51
St Luke's Hospital for Mental Diseases .. 51
Springfield House Private Asylum, Bedford 46
Stretton House, Church Stretton 47
The Grange near Rotherham 47
Vale of Clwyd Sanatorium 49
Warneford Asylum Oxford 51
Wye House Buxton 47

FINANCIAL, &c.—
Equitable Reversionary Interest Society 51

HEALTH RESORTS BATHS, &c.—
Alexandra Therapeutic Institute 50
Caterham Sanitarium 50
Davos 50
Droitwich Brine Baths 51
Smedley's, Matlock 50

HOSPITAL, INFIRMARY SANATORIUM &c., VACANCIES 52 53

HOUSE & ESTATE AGENTS—
Bedford & Co., Wigmore-street 54
Elliott Son & Boyton Vere-street 54
Ley Clark, Wimpole-street 54

LIFE & FIRE ASSURANCES, &c.—
General Life Assurance Co. 51
Medical Sickness and Accident Society 8
National Provident Institution 51
Prudential 51

MASSAGE—
Sharman 48

MEDICAL ACCOUNTANTS, &c.—
Turner 54

MEDICAL AGENTS—
Fieldhall Limited 55
Manchester Clerical &c., Association 55
Medical Agency 55
Needes Herbert 55
Needes J. C. 55
Peacock & Hadley 55
Turner 55

MEDICAL SCHOOLS—(London)
London School of Clinical Medicine 44
St. Mary's Hospital Medical School 44
West London Post Graduate College 44

NURSES ASSOCIATIONS—
Co-operation of Temperance Male and Female Nurses 45
Female Nurses Association 45
General Nursing Association 45
Hospital for Sick Children 45
London Nurses Association 45
London Temperance Nurses Co-operation 45

NURSES ASSOC (Continued)
Male Nurses Temperance Co-operation 45
Mental Nurses Association 45
Mental Nurses Co-operation 45
Nurses Association 45
Nurses Co-operation 45
St. John's House 45
St Luke's Hospital 45
Temperance Association of Male Nurses Ltd 45
The Retreat York 45

OFFICIAL NOTICES—
Auxiliary R.A.M.C. Funds 44
City of London Lying-in Hospital 44
Dorset Field Club Essay 55
Epsom College 7
Guy's Hospital 44
London School of Tropical Medicine 44
Queen Charlotte's Lying-in Hospital 44
Royal College of Surgeons of England .. 44
Royal (Dick) Veterinary College Edinburgh 44
Royal Society—Government Grant for Scientific Investigations 44
University of Cambridge 44
University of London 44

PARTNERSHIPS & PRACTICES 54

RAILWAY & STEAMSHIP CO'S.—
New Zealand Shipping Co 51

TUTORS & LECTURERS—
Behnke 45
Medical Correspondence College 44
Weymouth 44

TRADE AND MISCELLANEOUS ADVERTISEMENTS

AMBULANCES—
St. John Ambulance—Invalid Carriages 55

BOTTLE MERCHANTS—
Isaacs 42

CARRIAGES MOTORS &c.—
Armstrong—Chauffeurs' Coachmen's Footmen's Liveries 54

CHEMISTS & DRUGGISTS—
Allen & Hanburys—
Allenburys Throat Pastilles 23
Axonle Pituitarin 22
" Alopon 22
" Lmetine 22
" Quinl e Bihydrochloride 22
" Camphor 22
Bynin Amara 21
Byno Chrismol 21
Chrismol 21
" Capsules 21
" Confection 21
" Emulsion 21
Vapo-Cresolene 40
Anglo-French Drug Co—
Insulin Vial 37
Antist ptococcus Serum 37
Antitetanic Serum 37
Antidiphtheritic Serum 37
Anti Diphtheritic Tablets 37
Tara Tetanine 37
Antikamnia Chemical Co.—
Antikamnia Tablets 56
" & Codeine Tablets 56

CHEMISTS—(Continued).
Battley & Watts—
Liquor Opii Sedativus 37
Boots Pure Drug Co.—
Aspirin 33
Sodium Salicylate 33
Chloralamide 33
Butyl Chloral Hydrate 33
Salicylic Acid &c 33
British Drug Houses Ltd.—
Intramine 34
British Organotherapy Co—
Reliable Organotherapeutic Preparations 11
British Oxygen Co—
Oxygen 38
British Purchasers of Sanatogen—
Sanatogen 35
Formamint 35
Albumactin 35
Cystopurin 35
Bullock & Co—
Pepsina Porci 38
Acid Glycerine of Pepsine 38
Burroughs Wellcome & Co—
Practical Gifts for Christmas and New Year 27
Tablol Brand Capsule Calcium Iodo-ricinoleate 34
Tablold Brand Medical Outfits 34
Christy & Co—
Glyco-Thymoline 4
Glyco-Heroin 4
Crookes Laboratories—
Colloidal Sulphur 46
Erasmic Co.—Kinol Medicated Toilet Soap 4

CHEMISTS—(Continued)
Etablissements Poulenc Freres—
Stovaine 11
Fletcher Fletcher & Co—
Vibrona 30
Gale & Co.—Compound Syrup of the Glycerophosphates &c. 38
Heppells—
Urodonal 17
Howards Sodii Bicarb.
Lambert Pharmacal Co.—
Listerine 31
Maltine Manufacturing Co.—
Malto-Yerbine 25
Martindale—
Emetine-Bismuth Iodide 19
Suppositories of Emetine-Bismuth Iodide 19
Newbery & Sons—
Pulvis Jacobi Ver 4
New York Pharmaceutical Co—
Hayden's Viburnum Compound 27
Parke Davis & Co.—
Protoil 1
Price's Patent Candle Co., Ltd.—
Price's Night Lights 37
Price's Glycerin 37
Palmer & Co.—Burger's Nutrient Suppositories 4
Sancharia Corporation, Ltd—
Phytin 31
Ferrophytin 31
Quinophytin 31
Fortosan 31
Smith & Co—
Hall's Wine 32
S. P. Charles Co—
Sorbitol 32
" Sorbitol 32

CHEMISTS—(Continued)
Squire & Sons—
Elixir Colloid 18
Elixir Hypophysis Cerebri 18
Liquor Nucleinicus 18
Lorisol 18
Wander Ltd.—
"Wander" Malt Extract with Lactopeptine 12
Wilcox, Jones & Co—
Kola Astier 31

DISINFECTANTS—
Boots Pure Drug Co—
Chloramine-T 33
Condy's Fluid 6

FOODS—
Benger's Food 1
Blandy's Dietetic Preparations Cover iii
Brand & Co—
Essence of Beef 4
Cadbury Bros Ltd 41
Colman & Co—
Dinner Mustard 41
Carnrick & Co—
Liquid Peptonoid 31
Frame Malted Cereals Cover iii
Hewlett & Bros—
Vim 32
Horlick's Malted Milk Co—
Malted Milk Tablets Cover ii
Mellin's Food Co—
Mellin's Dietetic Foods 4
Pancreas Meat Juice Cover iv

Continued on page 4

THE LANCET.

No 4870 LONDON, SATURDAY, DECEMBER 30, 1916 Vol. CXCI.

CONTENTS.

The whole of the literary matter in THE LANCET is copyright

AN ADDRESS on the Hygienic Lessons of the War Delivered at University College, London by HENRY R. KENWOOD M.B Edin. D P.H. F R S E Temp Lieutenant-Colonel Royal Army Medical Corps Chadwick Professor of Hygiene and Public Health in the University of London 1033

A PRESIDENTIAL ADDRESS on Legends and Lore of the Genesis of the Healing Art. Delivered before the Section of the History of Medicine of the Royal Society of Medicine by RAYMOND CRAWFURD M A., M.D Oxon., F R C P Lond., Physician to King's College Hospital and King George Military Hospital London Fellow of King's College London 1035

ORIGINAL ARTICLES

Warfare on the Brain. By H FARQUHAR BUZZARD M D Oxon F R.C P.Lond. 1039

Plant Hairs as Pseudo Parasites. By R. DONALDSON M.B Ch.B Edin F R.C S Edin., D P H. Sheff and R. C McLEAN B A. B.Sc. Lond —(*Illustrated*) 1100

Notes on an Outbreak of Cerebro-spinal Meningitis at H M Training Establishment Shotley and the Method of Treatment Adopted — July 14th to August 14th 1916 By THOS D HALAHAN F R.C S Edin. 1102

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE: SECTION OF ELECTRO-THERAPEUTICS — Pharyngeal Pouches 1103

HUNTERIAN SOCIETY 1104

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY 1104

HARVEIAN SOCIETY OF LONDON 1104

LIVERPOOL MEDICAL INSTITUTION 1104

LONDON DERMATOLOGICAL SOCIETY 1104

REVIEWS AND NOTICES OF BOOKS.

Diseases of Children By A. Dingwall Fordyce M.D Edin. F R C P Edin. 1105

Growth in Length: Embryological Essays By Richard Assheton M A. Sc.D F R.S 1105

Clinical Methods A Guide to the Practical Study of Medicine By Robert Hutchison M.D Edin F R C P Lond and Harry Rainy M D Edin., F R.C P Edin Sixth edition 1105

Help for the Deaf: What Lip-reading is By E F Boultbee 1105

Appleton's Medical Dictionary Edited by Smith Ely Jelliffe M D, assisted by Caroline Wormeley Latimer M D .. 1105

Mysteries of Life: A Book for Boys and Girls By Stanley de Brath, M.Inst.C E.. 1106

The World's Wonder Stories for Boys and Girls. By Adam Gowans Whyte 1106

Outlines of Medical Jurisprudence with Special Treatment of Toxicology and Insanity By Ramesh Chandra Ray, L M.S Third edition 1106

Quarterly Journal of Experimental Physiology Editors: E A Schäfer W D Halliburton, C S Sherrington E H. Starling and A. D Waller Vol X. 1106

The Philippine Journal of Science, Section B Tropical Medicine. Vol. XI 1106

THE ANNUS MEDICUS 1916.

MEDICINE 1107

SURGERY 1109

OBSTETRICS AND GYNÆCOLOGY 1110

OPHTHALMOLOGY 1111

NEUROLOGY 1112

ELECTRO THERAPEUTICS AND RADIOLOGY 1112

TROPICAL AND EXOTIC DISEASES 1113

PUBLIC HEALTH 1114

ANÆSTHETICS... 1115

THE ROYAL NAVAL, ARMY AND INDIAN MEDICAL SERVICES 1116

DENTAL SURGERY 1117

FORENSIC MEDICINE. ... 1117

CHEMISTRY 1118

CONTRIBUTIONS FROM "THE LANCET" LABORATORY .. 1118

HONOURS TO MEDICAL MEN. 1118

GENERAL MEDICAL COUNCIL 1118

BRITISH MEDICAL ASSOCIATION 1119

THE PROFESSIONAL RECRUITING COMMITTEES 1119

THE MEDICAL RESEARCH COMMITTEE OF THE NATIONAL HEALTH INSURANCE COMMISSION 1119

THE LANCET VOL. II 1916: Index Notice 1120

SPECIAL ARTICLES

Tuberculosis Reports..... 1120

Annual Report for 1915 of the Chief Medical Officer of the Board of Education 1121

The Control of Venereal Diseases: Local Government Board Circular — Progress of County Council Schemes — The Detection and Treatment of Joint ts — Venereal Diseases in Prisons — Appointments at Guy's Hospital 1023

The Position of Discharged Soldiers under the National Insurance Acts..... 1123

The Services 1124

VITAL STATISTICS:

Vital Statistics of London during November 1916 11 5

Analysis of Sickness and Mortality Statistics in London during November 1916 1125

CORRESPONDENCE.

Observations on the Antiseptic Treatment of Wounds (Major William Pearson R A M.C) 1126

Mobilisation of the Medical Profession (Dr Major Greenwood) 1126

Vaccination on the Foot (Dr James Marsh) 1130

Milk in the Rearing of Infants 1131

THE WAR

The Casualty List..... 1127

Deaths among the Sons of Medical Men 1127

The Honours List 1127

New Military Orthopædic Centre 1128

The Committee on War Damage 1128

Royal Visit to the Wounded .. 1128

OBITUARY

Thomas Barr M.D., C M., Glasg F F P.S Glasg Surgeon Glasgow Hospital for Diseases of Ear, Nose, and Throat Lecturer on Aural Surgery University of Glasgow 1126

John Ewens L.R.C P.Lond., L.R.C S Edin. L.S A.... .. 1127

MEDICAL NEWS

Belgian Doctors' and Pharmacists Relief Fund 1035

Metropolitan Hospital Sunday Fund 1099

The Training of Health Visitors 1099

London School of Tropical Medicine 1127

University of Dublin, Trinity College, School of Physics Pass list 1128

Royal College of Surgeons of England 1128

Royal College of Surgeons of Edinburgh 1128

The Professional Classes War Relief Fund 1128

PARLIAMENTARY INTELLIGENCE

Notes on Current Topics 1128

House of Commons 1129

Vacancies 1129

Births Marriages and Deaths 1129

Notes Short Comments and Answers to Correspondents.. 1130

Medical Diary..... 1131

Editorial Notices..... 1131

Manager's Notices 1131

Meteorological Readings..... 1131

Acknowledgment of Communications received 1132

FOR INDEX TO ADVERTISEMENTS SEE PAGE 2

JOHN BALE, SONS & DANIELSSON, LTD.,

PRINTERS, PUBLISHERS, & PROCESS BLOCK MAKERS

LOCAL ANÆSTHESIA: An Illustrated Text-Book for Students and Practitioners Translated by RONALD E. S KROHN 2nd Impression. Royal octavo Pp 193 8s 6d. net, postage 6d.

FIELD SERVICE NOTES FOR R A M.C, including Alterations and Amendments. By MAJOR GOODWIN 3s. net, postage 2d

THOMPSON'S COMPENDIUM of the Pharmacopœias and Formularies (Official and Unofficial) FIFTH EDITION Completely Revised in accordance with the New British Pharmacopœia (1914) 5s net postage 4d

83, 85, 87, 89 & 91, GREAT TITCHFIELD ST, OXFORD ST, LONDON, W.

INDEX

MEDICAL AND OTHER BOOKS AND PUBLICATIONS

PAGE

BAILLIERE, TINDALL & COX:—
Lockhart-Mummery—Diseases of the Colon and their Surgical Treatment Cover 1

BALE, SONS & DANIELSSON:—
Goodwin—Field Service Notes for R.A.M.C. 1
Local Anæsthesia 1
Thompson's Compendium of the Pharmacopœias and Formularies 1

CHURCHILL, J. & A.—
Eden—Manual of Midwifery 5
Eden and Lockyer—Gynæcology 5
Frazer—Anatomy of the Human Skeleton 5

PAGE

CHURCHILL—(Continued)
Harry—Poverty and its Vicious Circles Cover 1
Lelean—Sanitation in War 5
Lucas—The Book of Prescriptions 5
Lucas & Stevens—Book of Pharmacopœias and Unofficial Formularies 5
Panton—Clinical Pathology 5
Sequeira—Diseases of the Skin 5
Taylor—Operative Surgery Head Neck Thorax Abdomen 5
Taylor's Practice of Medicine 5
Warren—Text-Book of Surgery 5
Wrench—The Healthy Marriage a Medical and Psychological Guide for Wives 5

PAGE

LEWIS & CO.—
Moullin—Enlargement of Prostate Cover 1
Moullin—The Biology of Tumours Cover 1
Russ—A New Treatment for Gonorrhœa Cover 1

MEDICAL PUBLISHING CO.—
Lane Sir A.—Operative Treatment of Fractures Cover 1

NISBET & CO.—
Romer and Creasy—Bonesetting and the Treatment of Painful Joints Cover 1

SAUNDERS COMPANY—
Anders and Boston—Medical Diagnosis 5

PAGE

SAUNDERS CO.—(Continued).
Bandler—Medical Gynæcology 5
DeLee—Obstetrics 5
DeLee & Obstetrics Cover 1
Morrow—Diagnostic and Therapeutic Technique 5

WRIGHT & SONS (Bristol)—
Bourne—Synopsis of Midwifery Cover 1

MEDICAL LIBRARIES, &c.—
Baker—Books 4
Behnke—Stammering Lisping & Cleft Palate Speech Cover 1
Kelley S. ammering Cover 1
Matthews—Wood: Application of Trusses to Hernia Cover 1

OFFICIAL AND GENERAL ANNOUNCEMENTS

ASSISTANCES MEDICAL 40

ASYLUMS HOMES, &c.—
Ashwood House Kingswinford 34
Barnwood House Hospital 35
Bishopstone House, Bedford 31
Brunton House, Lancaster 35
Camberwell House Peckham road 38
Clarence Lodge, Clapham Park 31
Colthurst House School Alderley Edge 31
Coppice The Nottingham 35
Dalrymple House Rickmansworth 37
Dartmoor Sanatorium 37
David Lewis Colony Alderley Edge 31
Duff House Banff 37
General Manager Craven street 38
Ghyllwoods Sanatorium 36
Grove House, Church Stretton 35
Grove, The, Catton Norwich 35
Haslemere Nursing Home 38
Haydock Lodge Newton le-Willows 36
Homes for Inebriate Women 31
Littleton Hall Brentwood 32
London Fever Hospital 35
Malling Place, Kent 35
Melbourne House, Leicester 38
Mendip Hills Sanatorium 3
Moat House, Tamworth 35
Newmains Retreat, Lanarkshire 38
Nordrach-on Dee, Banchory 37
Northumberland House, Finsbury Park 35
Northwoods House Winterbourne 35

ASYLUMS—(Continued)
Peckham House 26
Pendyffryn Hall Sanatorium, Nordrach-in Wales 37
Plympton House, Plympton 35
Portsmouth Corporation Mental Hospital 31
St. Andrew's Hospital, Dollis Hill 38
St. Andrew's Hospital, Northampton 35
St. Luke's Hospital for Mental Diseases 36
Shaftesbury House Formby-by-the-Sea 36
Springfield House Private Asylum, Bedford 31
Stretton House Church Stretton 35
The Grange, near Rotherham 35
Vale of Clwyd Sanatorium 37
Warneford Asylum, Oxford 34
Wye House Buxton 35

FINANCIAL, &c.:—
Equitable Reversionary Interest Society 32

HEALTH RESORTS BATHS, &c.:—
Caterham Sanitarium 33
Droitwich Brine Baths 33
Peebles Hotel Hydro 34
Smedley's, Matlock 33

HOSPITAL INFIRMARY SANATORIUM, &c. VACANCIES 33-40

LIFE & FIRE ASSURANCES &c.:—
Prudential 32

MASSAGE—
Sharman 31

MEDICAL ACCOUNTANTS, &c.—
Turner 40

MEDICAL AGENTS—
Fieldhall, Limited 41
Manchester Clerical, &c., Association 41
Medical Agency 41
Needes J. C. 41
Peacock & Hadley 41
Turner 41

MEDICAL SCHOOLS:—(LONDON)
London School of Clinical Medicine 31
University of London, University College 31
West London Post Graduate College 32

NURSES ASSOCIATIONS:—
Co-operation of Temperance Male and Female Nurses 33
Female Nurses Association 33
General Nursing Association 33
Hospital for Sick Children 35
London Nurses Association 34
London Temperance Nurses Co-operation 35
Mental Nurses Association 35
Mental Nurses Co-operation 35

NURSES ASSOC. (Continued).
New Mental Nurses Co-operation 34
Nurses Association 34
Nurses Co-operation 34
St. John's House 34
St. Luke's Hospital 33
Temperance Association of Male Nurse Ltd. 3
The Retreat, York 34

OFFICIAL NOTICES—
City of London Lying-in Hospital 32
Institute of Massage and Remedial Gymnastics 32
London School of Tropical Medicine 31
Professional Classes War Relief Council 31
Queen Charlotte's Lying-in Hospital 32
Royal Institute of Public Health 31
To the Electors of the Universities of Edinburgh and St. Andrews 32
To the Parliamentary Electors of the Universities of St. Andrews and Edinburgh 32
University of Cambridge 3
York road General Lying-in Hospital 22

PARTNERSHIPS & PRACTICES. 40

RAILWAY & STEAMSHIP CO'S.—
New Zealand Shipping Co. 33

TUTORS & LECTURERS—
Schnello—Stammering Cover 1
Weymouth 32

TRADE AND MISCELLANEOUS ADVERTISEMENTS

AMBULANCES—
St. John Ambulance—Invalid Carriages 4

BOTTLE MERCHANTS—
Isaacs 4

CARRIAGES MOTORS, &c.:—
Armstrong—Chauffeurs Coachmen's Footmen's Liveries 40
Offord & Sons—Ford Cars 4

CHEMISTS & DRUGGISTS—
Allen & Hanburys—
Allenburys Cod Liver Oil 15
Bynol 15
Bynin Emulsion 15
Argein Kavol, Cystarol 14
Allenburys Castor Oil 30
Anglo-French Drug Co.—
Supsalvs 22
Mersalv 22
Neocaine-Surrenine 22
Endocrisines 22
Biliéri 22
Boots Pure Drug Co.—
Aspirin 12
Sodium Salicylate 12
Chloralamide 12
Butyl Chloral Hydrate 12
Salicylic Acid &c. 12
British Oxygen Co.—Oxygen 26
Browning & Co.—Semprolin Emulsion with Guaiacol 21
Bullock & Co.—
Lepsina Liquid 23
Acid Glycerine of Pepsine 25
Burroughs Wellcome & Co.—
Reliable Aperients 16
Wellcome Brand Chloroform 18
Sodoid Brand Product 19
Tarolene Spray Compound 19
Compound Menthol Snuff 19
Carnrick (G. W.) & Co.—Hormotone Cover iv
Christy & Co.—Glyco-Heroin 1
Clay Parrett & Co.—Glycolactophos 2
Erasmic Co.—Kinsol Medicated Toilet Soap 1

CHEMISTS—(Continued)
Fairchild Bros. & Foster—Pepsencia 13
Fletcher Fletcher & Co.—Vibrona 20
Gale & Co.—Elixir Cresolis c. Heroin Co. &c. 21
Heppells—
Urodonal 25
Jubol 25
Globeol 25
Lageol &c. 25
Hogg & Son—Protein Nerve Food 28
Hudson's Eumenthol Chemical Co.—Eumenthol Tooth Powder 27
Humphrey Taylor & Co.—Junora Cover iii
Maltine Manufacturing Co.—Malto-Yerbine 17
Mertens—Electrargol 42
Parke Davis & Co.—Cocillana Compound Syrup 11
Heroin and Terpin Hydrate Elixir 11
Anodyne Pine Expectorant with Heroin 11
Raimes & Co.—Slinger's Nutrient Suppositories 23
Saccharin Corporation, Ltd.—Feristaltin 9
Salen 9
Salenal 9
Aloform 23
Tidman's Sea Salt 9
Wilcox, Jozeau & Co.—Kola Astier 9
Nativelle's Crystallised Digitaline 8
Zimmermann & Co.—Subitol 2

DISINFECTANTS—
Boots Pure Drug Co.—Chloramine-T 3
Condy's Fluid 2
Lysol, Ltd.—Lysol 2
Quilell Bros.—Kerol 27
Capsules 2

FOODS—
Aylesbury Dairy Co.—Humanized Milk 29
Benger's Food 10
Blatchley's Diabetic Preparations 30
Cadbury's Cocoa 21
Carnrick & Co.—Liquid Peptonoids 17
Hewlett & Son—Virophos 29
Hommel's Hæmatogen 42
Southall Bros. & Barclay—Vitafer 30
Valentine's Meat-Juice Cover ii
Van Houten's Cocoa Cover iii

FURNITURE, &c.—
Carter—Furniture for Invalids and Hospital Supplies 7

MED. & SURG. APPLIANCES—
Bailey & Son—Patent Abdominal Belts 7
Davis—Catgut Sutures 8
Down Bros.—Carrel's Apparatus for the Irrigation of Suppurating Wounds 2
Leslie Ltd.—Leslies Zincoplast Cover ii
Original Brown Holland Surgical Strapping Cover ii
Medical Supply Association—Greville Intensified Injection Transformers 45
Millikin & Lawley—Otology &c. 21
Robinson & Sons—Gamgee Tissue 3
Salmon Ody Ltd.—Fallani & Werke Trusses
Belts
Elastic Hosiery
Sherrer—Hawes Elastic and New Orthopædic Appliances 6
Thermogene Co., Ltd.—Thermogene Curative Wadding 6
Thompson & Co.—Thermometers 1

MINERAL WATERS &c.:—
Perrier 29

MOTOR SPIRIT—
G. L. I. Co.—Carburine Motor Spirit Cover ii

OPTICIANS:—
Watson & Sons—Microscopes 4
Hæmocytometers 4

TAILORS BOOTMAKERS &c.:—
Burberrys—Weatherproof Topcoats Suits &c. 4
Dowie & Marshall—Hygienic Bootmakers 4
Evan & Co.—Lounge Suits 4
Service Uniforms 4
Jackets 4
Slacks 4
British Warmtline Fleece 4
Harry Hall—Service Dress R.A.M.C. and Navy 43

TYPEWRITING &c.:—
Taylor's Typewriters 8

VACCINE LYMPH—
Chaumier's Calf Lymph 6
Jenner Institute for Calf Lymph 6
Lepetit's Calf Lymph Establishment 6

WINES BEER, SPIRITS &c.:—
Brown Gor & Co.—
Gaultier Liqueur Brandy 29
Hiram Walker & Co.—
"Gilt Edge" Canadian Whisky Cover ii

MISCELLANEOUS—
Fels Litmus
Jaques & Sons
Greene Instruction in Cutting Boots Shoes &c.
G. T. L. O. Bras. 3
Transformers 6

The Cavendish Lecture

ON

THE FATE OF PATIENTS WHO HAVE HAD STONES REMOVED FROM THE KIDNEY

Delivered June 23rd, 1916,

BY SIR JOHN BLAND-SUTTON, F R C S ENG,
SURGEON TO THE MIDDLESEX HOSPITAL.

MR PRESIDENT AND GENTLEMEN,—The fate of patients who have had stones removed from one or both kidneys is an important matter, and one on which little has been written Most of what I have to say on this theme is based on my own experience I saw Morris remove a stone from the kidney of a woman in the Middlesex Hospital in 1880 The operation is historical, it proved that a stone could be removed from the kidney and the patient survive In the interval operations for renal calculi have made amazing progress The detection of stone in the kidney or in the ureter has become an art The introduction of radiography improved this branch of surgery A good radiograph indicates the presence of stones, from their shadows the surgeon learns their number, size, and position Cystoscopy furnishes facts about the condition of the ureters Clinical chemistry affords information of the value of the renal function, microscopic and bacteriologic examination of the urine completes the clinical picture

During the past 25 years surgeons have been intent on methods of diagnosis and technique These are now complete Errors in diagnosis are so unusual that patients willingly submit to surgical interference when it is certain that the kidney contains a stone Many patients ask questions concerning the effect on life, and the expectancy of life, when a stone is taken out of the kidney These questions are easily answered in terms favourable to the patient, but I am anxious for data on which to frame an opinion of the probable frequency of bilateral renal calculi, and on the expectancy of life when one kidney has been removed for calculous disease

ON PEOPLE WHO LIVE WITH ONE KIDNEY

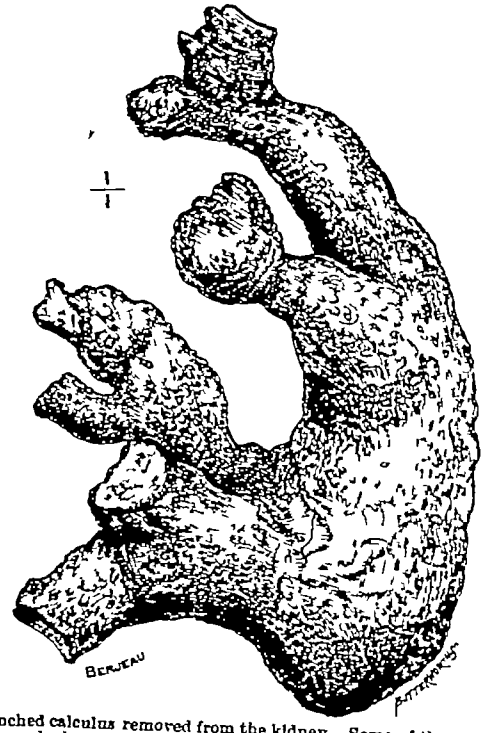
When the removal of a disorganised kidney is recommended the patient invariably asks 'How shall I get on with one kidney?" The answer is simple Many are born with one kidney and lead useful, energetic lives, attain old age, and die ignorant of the fact that they had only one kidney Hundreds of men and women are living from whom surgeons have removed a kidney on account of stone Many live unsuspicious that one of their kidneys has been insidiously destroyed by calculous disease A man with one healthy kidney may live as long as another with two, but often his existence is precarious

An actor, aged 40, noticed blood in his urine after an attack of severe pain in the right loin An expert radiographer obtained a deep shadow from the left kidney, but none from the right The stone in the left kidney was so big that I could feel it through the abdominal wall The kidney being disorganised I concluded that the patient was "living with one kidney" and suspected, in spite of the radiographer's negative report, that the pelvis of the right kidney contained a small migratory stone I decided to remove the left kidney through an incision in the linea semilunaris, as this enabled me to examine the right kidney and ureter, but failed to feel a stone I removed the left kidney, it was a thin-walled sac containing pus and a large branched calculus (Fig 1) Within a month the patient left the nursing home for Margate Shortly after reaching Margate he was seized with acute pain in the right loin and was unable to pass water Four days later he came to London in a condition of anuria A few hours after his arrival I exposed the right kidney by an incision in the loin, let out much urine and passed a guide down the ureter to the bladder Next day the patient passed urine naturally, soon he became convalescent and returned to Margate An X ray examination showed that the guide I passed down the ureter had pushed a stone, the shape and size of a cherry stone into the bladder Whilst at Margate the patient passed the stone during urination and sent it to me in a pill box. It is a curious form of retaliation that leads men and women to send renal calculi to surgeons in pill boxes

My friend survived the operation six years As a character actor he won approbation, like Yorick, he was "a fellow of infinite jest, of most excellent fancy" One evening, whilst waiting for his cue, he was seized with acute abdominal pain and seemed about to die He was conveyed to a hospital hard by the theatre A duodenal ulcer had perforated and a prompt operation failed to save him

This case illustrates what most surgeons quickly learn from experience a large disorganised kidney stuffed with calculi rarely disturbs a patient, but a small migratory calculus, no bigger than a cherry stone, in an otherwise normal kidney will render life unendurable by causing frequently recurring attacks of colic Occasionally, the ureter of the less disorganised kidney is obstructed by one of these troublesome calculi, the patient becomes anuric and is brought, with dramatic suddenness, not only to the brink of, but actually into, the grave The aphorism, *L'anurique est un individu qui la veille vivait avec un rein* (Legueu), though useful, does not apply to all anurics, for

FIG 1



A branched calculus removed from the kidney Some of the branches broken during removal were pieced together after the operation This stone caused its owner no pain

an individual may have two good kidneys and each harbour a stone By an unusual concatenation of circumstances each ureter may be simultaneously blocked by a calculus Many such occurrences have been recorded Here is another

A man, aged 44, weighing nearly 24 st, had suffered from attacks of renal colic and passed fragments of stone at intervals for 29 years One night he was suddenly seized with acute pain in the right loin and became anuric On the fifth day of the anuria he was admitted to the Middlesex Hospital and prepared for operation When wheeled into the theatre he refused to submit to operation, urging that as he was now free from pain there could be no mischief I saw him an hour later He was intently reading the third chapter of the Lamentations of Jeremiah, in which the Jewish nation is personified as a man lamenting his own calamities The following day he voided blood, became alarmed, and submitted to operation I extracted a conical calculus from the upper end of the right ureter Sixteen hours afterwards he had a slow pulse, muscular tremors, and contracted pupils His mind remained clear almost to death which occurred 72 hours after the operation At the post-mortem examination the left ureter was

found obstructed by a calculus of the same shape and size as that removed from the right kidney This man died from simultaneous blocking of both ureters The pelves of the kidney were not much dilated, there was no sacculation, and the renal cortex showed little evidence of disease

These two cases illustrate an important feature in regard to the "period of tolerance'—that is the time elapsing between the onset of anuria and the manifestation of uræmia This is on an average six days It is an axiom in renal surgery —*The earlier operation is undertaken after the onset of anuria*, the better the results Thus the actor who submitted to nephrectomy on the fourth day recovered, the vacillating student of Jeremiah refused operation until the sixth day, and died, although from richness in renal tissue he had the better chance A great danger besets men and women who have had a kidney removed for calculous disease At any instant the ureter of the remaining kidney may be blocked by a stone

In 1890 I removed from a fat cabman aged 38, the left kidney completely disorganised and crammed with stones This man suffered no pain from his calculous kidney in spite of the fact that he daily jolted over the stones of London on a cab! Twenty five years later he was readmitted into the Middlesex Hospital with anuria of three days standing Though this cabman was very fat, an oval swelling could be felt in the right loin His kidney was exposed by means of an incision in the loin and the imprisoned urine released Three days afterwards the patient passed water naturally, made a good recovery, resumed his work, and remains in good health

The cabman and the actor may be usefully compared Each lost a kidney, disorganised by calculous disease, and each had been "living on one kidney," as the phrase goes Each ran risks of dying from anuria, and both were saved by a prompt operation, but the actor had his attack within two months of the removal of the kidney whereas for the cabman it was delayed a quarter of a century The cabman is the longest survival after nephrectomy in my practice He has been living for 26 years with one kidney, and now earns his living with a taxi cab

Anuria is the gravest of the many complications of renal calculi Its sudden onset, in persons apparently in good health, is a most impressive feature In the early days of the anuria it is hard for them to realise that they are near death Later, when the signs of uræmia appear, surgical interference is rarely successful. Spontaneous relief, due to the stone being extruded into the bladder, happens in about 25 per cent Cystoscopy aids here A cystoscopic examination sometimes reveals a calculus in process of extrusion through the vesical orifice of the ureter I have seen such a delivery, it occupied two hours The gradual advance of the stone with each pain was very striking This is perhaps the nearest trial a man can have of the "pains of labour" With each "pain" the man uttered loud complaints The preceding cases illustrate the varying attitudes of men to operative treatment, they vary with the phase of the disorder When Shibli Bagarag rolled his body in the sand within sight of the city of Shagpat he exclaimed—

> On different heads misfortunes come,
> One bears them firm another faints,
> While this one hangs them like a drum
> Whereon to batter loud complaints

A man in agony with a stone stuck in his ureter rolls about the bed, clamours for help—clamours loudly, shouts, and willingly submits to operation When the colic is replaced by anuria, he disdains surgical interference and occasionally mocks at his advisers, but as soon as uræmia stalks anuria he passively submits to what is often a useless operation Although the risks of an operation on the kidney with uræmia manifest are great it is useful like the barber Baba Mustapha to remember the poet's words —

> The abyss is worth a leap however wide
> When life sweet life is on the other side

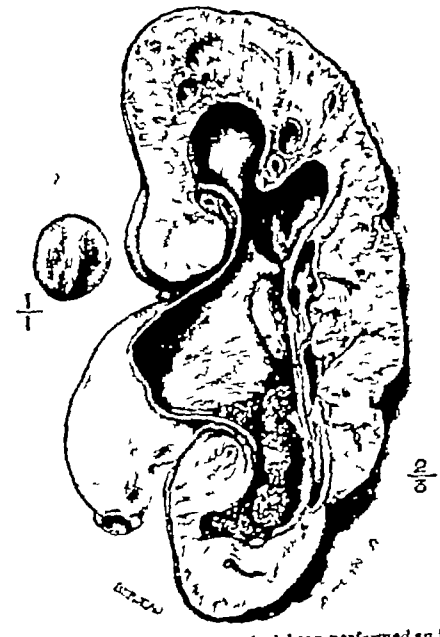
This is the position of a man stricken with uræmia the sequence of calculous anuria

BILATERAL AND RECURRENT CALCULI

Having described examples of bilateral renal calculi in which the disease was advanced in one kidney and unsuspected in the other we may now consider some in which both kidneys were known to be occupied with calculi This is an important matter because surgeons hesitate to remove bilateral calculi from fear of inducing uræmia, but there are conditions in which interference is justifiable Watson collected 230 cases of renal calculi reported by six surgeons, he estimated that in 30 per cent of the patients stones were present in both kidneys Among 100 patients under my own care stones were bilateral in ten At my request Mr W A. Coldwell looked through his series of radiographs of calculous kidneys Among 68 plates in which calculi were clearly shadowed and the stones subsequently removed, in eight the shadows were bilateral

The risks of recurrence after nephro-lithotomy have never been estimated on a large statistical basis It is difficult for a surgeon to calculate the proportion of recurrence even in his own practice Patients have an idea that if a surgeon removes a stone from the kidney he is in some measure responsible if a new stone forms, and betakes himself to another hospital There is another way in which recurrent renal calculi come under observation A colleague retires the patient comes again to the hospital, and is placed under the care of a successor or survivor Here is an illustration A woman, aged 28, came under my care with stones in a disorganised kidney She had been submitted to nephrolithotomy 12 years previously I removed the kidney, in the drawing (Fig 2) you will see the picture of the stone removed at the original lithotomy

FIG 2

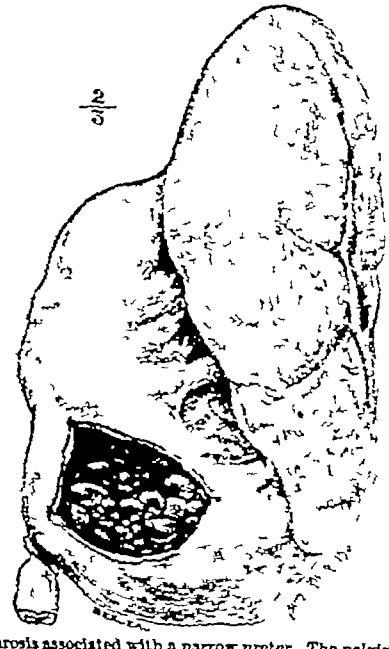


Kidney in section Nephro-lithotomy had been performed and a bean shaped calculus removed in 1889 Twelve years later she came under observation with recurrent calculi The kidney was removed

It is probable that sepsis following nephro-lithotomy is in many cases responsible for recurrent calculi For example A woman had an enlarged kidney which a surgeon exposed and incised under the impression that it contained a stone (Fig 3) Instead of a stone he found a narrow ureter, to remedy this a plastic operation was performed The woman recovered without benefit Two years later she came under my care, a radiograph showed a curious shadow low in the abdomen on a level with the iliac fossa On exposing the kidney by means of an incision in the left linea semilunaris I found the pelvis distended with smooth urinary pebbles I removed it With the loss of the kidney the patient lost her aches and pains It is reasonable to believe that the operation on the kidney led to infection and the formation of calculi A renal calculus is a heap of crystals held together by cement substance Thus after the kidney became infected crystals were precipitated from the urine and cemented by inflammatory exudate Gall stones often contain a central clump of bacilli and have been compared to pearls—which frequently contain a small worm as a nucleus Gall stones and renal calculi are tokens of pain and misery but pearls emblems

of beauty and riches, are worn without any regard to the pain they may have caused the oysters I have had many renal calculi examined in the expectation of finding a clump of bacilli as a nucleus, so far without success Micro-organisms are excreted by the kidney, and it is probable that the nucleus of a primary renal stone may be occasionally a clump of bacilli. Recurrent calculi are commonly associated with septic changes in the kidney In the infancy of nephro-lithotomy the operation was not carried out with the precautions and ritual which attend it to-day A free incision was made in the cortex of the kidney, its pelvis and calyces were explored with a bare

FIG 3



Hydronephrosis associated with a narrow ureter The pelvis is occupied by urinary pebbles

and often septic finger In many cases a rubber tube was introduced into the pelvis of the kidney for drainage, this provided a high road for an invasion by pyogenic organisms Bacillus coli soon colonised the pelvis When surgeons turned their attention to this matter it gradually became the habit in suitable cases to remove calculi through an incision in the pelvis of the kidney and carefully close the opening with sterile sutures Primary union and speedy convalescence often follow with advantage to the patients, they recover quickly suffer less, and run less risk of a recurrent calculus We must not lose sight of the fact that many calculous kidneys are septic at the time of the primary operation

Calculi sometimes form in kidneys in en[illegible] without the least evidence of sepsis In 19[illegible] aged 38, had signs of stone in his right kidney [illegible] graph showed such a large shadow as to mak[illegible] accuracy During the removal of this [illegible] surprise, on withdrawing it from [illegible] containing the stones burst In an [illegible] operation area was covered with hundreds of iridescent calculi resembling little balls of burnished gold We tried to pick them up, but they ran over the towels slipped between them dropped on the floor like hail and were as elusive as globules of quicksilver The collected calculi to the number of 40,000, are preserved in the Museum of the Royal College of Surgeons I saw this gardener in good health 12 years after the operation and still grateful for the relief the operation afforded him The College Museum contains a similar specimen, the calculi number 27 000 They are of the shape size, and colour of millet seed

SURGICAL TIMIDITY

The conservation of a disorganised and septic kidney (Figs 2 and 3) exposes patients to the risk of future suffering from recurrent calculi This entails repeated operations and finally removal of the kidney under adverse conditions Endeavours to save such damaged kidneys are not examples of cautious surgery, but rather glaring instances of surgical timidity

We are all more or less influenced by a wholesome respect for renal tissue We know, too well, that some men get on in the world with very little brains, some with none But no man can live without a certain amount of kidney Some push this witticism too far Many patients suffer much discomfort, even misery, from a timid nephrotomy when their best interests demand bold removal of the disorganised kidney When a kidney is septic, calculous, and disorganised, if its companion is normal the diseased kidney should be removed. I have watched many patients, men and women, who have led vigorous lives after nephrectomy for calculous pyonephrosis

It was my habit to give patients the stones I removed from their kidneys A bad habit The stones serve as souvenirs of discomfort and agony Listen to a sufferer, an Italian poet —

> Other white stones serve to mark happy days,
> But mine do mark days full of pain and gloom
> To build a palace, or a temple fair,
> Stones should be used, but mine do serve
> To wreck the fleshy temple of my soul
>
> Well do I know that death doth whet his glaive
> Upon these stones, and that the marble white
> That grows in me, is there to form my tomb
>
> (*Ciri de Pers*)

These depressing lines represented at the time they were written the helpless condition of patients suffering from stone in the kidney The natives of the southern part of America, at the time the continent was discovered, wore amulets of jade as a remedy for renal colic This is how jade got from Spaniards the alternate name of nephrite Fifty years ago in Europe the treatment of stone in the kidney had not got beyond the stage of physic Amulets in another form, says the caustic critic

---

ABSTRACT OF

An Address

ON

THE PREVENTION AND TREATMENT OF CHOLERA

Delivered before a Medical Conference in Malta,

BY STAFFORD M COX, M D DUB,

MAJOR ROYAL ARMY MEDICAL CORPS

MR PRESIDENT AND GENTLEMEN —If cholera visits Malta it will necessarily be seaborne Local conditions are not favourable to the disease becoming endemic, but in[illegible] [illegible] should be a seric[illegible] employ re[illegible] glass syringe[illegible] a cork (prefe[illegible] only in mild [illegible] severely colla[illegible] glass tubing 4 inch[illegible] intestinal anti- much bene[illegible] projection The bi[illegible]nate of potash, extract [illegible]onary measure position by strappi[illegible]ulants, such as interference wit[illegible] in or Nos 7 and 8 are [illegible]uches are useful result Apart from [illegible] essential At least [illegible] pressure is under agreement with this [illegible] to the absence of a ba[illegible] [illegible] few days candle should be te[illegible] would pl[illegible] [illegible], a tent hospital for 50 patients accessible and [illegible] it should be placed at a point easily [illegible] remote from road traffic Fly proof cesspits and latrines open to the sunlight are essential Quick lime is recommended for these as the best drying and disinfecting agent In choosing a site the possible contamination of existing wells should be remembered A segregation or detention camp in close relation to the hospital will be needed for the isolation and disinfection of contacts Probably a week's detention after each fresh case would suffice In addition discharged contacts should have their addresses registered, and for another week report daily at the hospital During the detention period each contact should be immunised with Wright's prophylactic Contacts becoming cholera suspects should be placed in an observation tent line The same general measures with regard to latrines and cesspits should be observed A special form of transport, preferably motor, should be provided for the patients

In the event of an actual outbreak the guard on reservoirs, should be strengthened, all wells, ships' tanks, &c, should be treated with permanganate of potash Advisory circulars should be issued to both the military and civil population concerning what to eat and what to avoid Aerated water factories should be officially supervised, and instructions issued generally for the regular testing and cleansing of filters In the presence of an epidemic it is questionable if filtration alone is sufficient against this water borne disease A defective filter is worse than none, and in my experience 20 per cent of the portable filter cores marketed are defective. Bacteriological examination of the water supply from the reservoirs and wells should be regularly made Freshly isolated bacilli show the most typical morphology Subcultures often show rod and coccoid forms due to medium reaction Cholera red is often obtained with difficulty Pure 24 hours' subcultures give best results, It is by immune reactions cholera is best identified.

TREATMENT

There is little hope of treating the fully developed disease by a bactericidal serum I used the Pasteur serum in the intravenous infusion in 1907 in 24 cases with a mortality rate of 33 per cent, as compared with 28 per cent for 65 cases where the saline alone was used This was probably accidental—the number of cases was too small to indicate more than that, exceptional advantages are not to be expected from its use Doubtless bactericidal sera when employed in other acute diseases are considerably helped by the body cells in the elaboration and neutralisation of toxins In the collapse stage of cholera the circulatory derangement is so great and the body resources are so exhausted that little help can be expected from the patient's tissues Serum treatment, therefore, would seem to be contra indicated as likely to hasten the breaking up of the vibrios, the evolution of their endotoxins, and a speedier intoxication in the absence of assistance from the body cells All attempts to produce a potent antitoxic serum have so far failed owing to the difficulty experienced in procuring the corresponding circulant toxin

The best hope of combating the disease from this point of view is therefore in the prophylactic treatment, by inducing an active immunity sufficient to destroy the bacteria that enter the body before they have time to increase Mild infections will probably be fully met by this means, but severe primary infections will still probably show the incompleteness of the immunity given Three forms of prophylactic inoculation have been chiefly used Haffkine uses the living cultures in two injections of two strengths, giving immunity in ten days The severe local reaction is the main objection to its use Protection is supposed to be in proportion to the reaction Strong employs an autolysate It produces no reaction 2–5 c c are usually given, but mass doses can be used Wright's prophylactic inoculation also produces no appreciable reaction 150,000 of the Serbian troops have been inoculated by the Royal Army Medical Corps with this prophylactic without accident[illegible]dy in the

Treatment solely by medicine is admissible [illegible]—

incipient cases The drugs most in use ar[illegible] mild [illegible] septics, such as urotropin drinks, permangan[illegible] intestinal anti castor oil, and chlorodyne Cardiac stim[illegible] of potash, digitalin and pituitary body Saline do[illegible]ts, such as Morphia should not be given if the blood [illegible]s are useful 100 mm [illegible]sure is under

severely [illegible] much bene[illegible]ration [illegible]psed cases once they pass the stage of rigor extract [illegible]nted by ¼ grain each of morphia and belladonna interference [illegible] Apart The blood pressure is then rising rapidly and result [illegible] kidney function has never been seen to [illegible]ment with th[illegible] its use in this respect I am quite in [illegible] incised under [illegible]igh authority that it is contra indicated [illegible]

TREATMENT OF COLLAPSE STAGE OF CHOLERA

The chief conditions indicating treatment are (*a*) Lowered blood pressure, normally 120–130 mm this may fall to 50 or 60 mm, causing a cessation of kidney function (*b*) Concentration of blood The normal specific gravity of 1055 may rise to 1080 This would correspond to a loss of about two thirds of the fluid constituents The blood becomes tarry and circulates with difficulty (*c*) Loss of vaso motor control of capillaries, especially in the intestinal canal attributed to absorption of the endotoxins A drainage of the blood fluid into the intestinal canal is thus set up, forming the characteristic rice water stools and vomit (*d*) Cardiac angina and cyanosis (*e*) Great loss of body heat The temperature in the axilla or mouth varies from 95° to 97° F, being usually somewhat higher in the rectum The extremities fall to practically the temperature of the surroundings, the patient is chilled to the bones The skin becomes as plastic as that of a corpse, retaining for some considerable time the shape given by pinching it

I draw particular attention to this great backward swing of the pendulum of body heat, which in the nature of things if the patient recovers, we would expect to be followed by an almost equally marked forward oscillation, with all the phenomena of returning animation, as is seen in other allied conditions of chill Spontaneous reaction from this extreme condition is rare, and if it occurs is associated with pyrexia of a more or less continuous type, forming the group of symptoms classified as the stage of febrile reaction Happily, intravenous saline transfusion produces an adequate reaction without these features It is found that when about 5 pints of fluid have been infused the patient—who has then lost his cramps, has had his pulse restored, and perhaps shows a temperature of 100°—*invariably* develops a rigor proportionate in severity to the degree of collapse, the patient's teeth rattle like castanets he is seemingly extremely ill, and an inexpert attendant would probably stop the transfusion

To divert for a moment, Rogers, in his most excellent work on cholera, rallies me for the use of hot-water bottles in cholera, and states he has banished them from his wards His statement is quite correct I use hot water bottles and even extra blankets, but only for the ten minutes occupied by this stage of transfusion rigor, through which all patients adequately treated with saline must pass I have most carefully read his work on cholera and can find no description whatever of his patients having "transfusion rigors" If they have no rigors I can understand their not needing hot-water bottles I regard this condition as all essential, and should it, as sometimes happens, be delayed through the solution running cold or a kink in the tube stopping the flow impaired results must be expected The average amount of saline transfused by Rogers is 4 pints, in exceptional cases 5 pints, this just falls short of the amount which produces the reaction rigor, and the presumption is that Rogers does not carry his transfusion to this point, has not seen the reaction rigor, and therefore does not use hot-water bottles The comparatively moderate results he has obtained using means that practically correspond in kind, but not in degree of use would seem to confirm this explanation They are as follows his are taken from his work on cholera using hypertonic saline, mine were obtained using isotonic saline

India	*China*
Rogers, 1910 and part 1909	Cox 1909
Collapse stage cases only	Collapse stage cases only
Number of cases, 103	Number of cases 666
Average amount transfused, 4½ pints	Average amount transfused 13 pints
Mortality, 32 per cent	Mortality 18 8 per cent

In this connexion an interesting point remains to be noticed Rogers strongly denounces the employment of opium in any form in cholera and has never seen any but ill results from it This, again seems due to inacquaintance with the transfusion reaction rigor, the indications for its calculment are then most manifest I have found

The proportionately greater loss of body chlorides in the stools of severely collapsed cases pointed out by Rogers induced me in 1913 and 1914 to use hypertonic strength with a proportionate decrease in the amount of fluid In some 45 cases I used an average of 8½ pints of hypertonic solution with good results I found that this procedure lessened the tendency to relapse Hypertonic strength should therefore be used in preference to isotonic until an average amount of 7 to 8 pints for adults has been introduced after that if more fluid is required isotonic should be used The fluid necessary is estimated by the blood pressure and specific gravity

WORKING NOTES

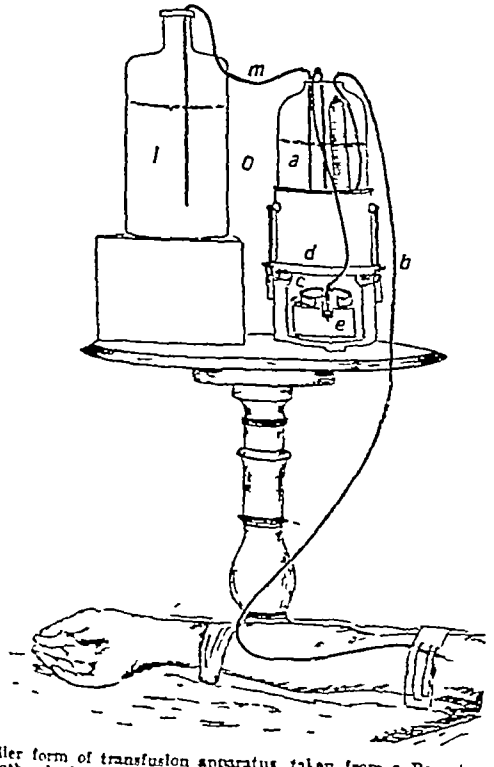
Few medical procedures show a more striking correspondence between the care exercised and the results attained than intravenous infusion in cholera and this is the only apology offered for the perhaps over elaboration of details which

follow As the collapse stage is the most important phase of the disease and the only one requiring this treatment, that stage only will be dealt with

My acquaintance with the disease was gained at Shanghai, where since 1907 I had charge of the Chinese cholera hospital, and have treated over 2000 cases I used an apparatus devised by R H Cox, F R C S, by which a solution of saline in boiled water is led to the vein through a filter placed in circuit and is maintained at the temperature desired by an adjustable heat-regulating mechanism Sir Leonard Rogers uses an apparatus consisting of a cistern, tubing, and a stopcock for regulating the flow, through which he introduces 4–5 pints of hypertonic saline in distilled water in 20 minutes The chief disadvantage in this method lies in the difficulty in procuring freshly distilled water, except in times of peace or at a base Apart from this, the rate of flow indicated is too quick per minute, except in the first two pints, in severely collapsed patients The quantity (4–5 pints) is also insufficient to induce the reaction rigor

The advantages of the method of continuous intravenous saline infusion are 1. A regulated flow at a constant temperature can be maintained 2 Boiled water, an easily procurable commodity, is used 3 A considerable number of cases can be maintained running at the same time, the apparatus being self regulating requires little attention 4 The rate of flow is more gradual than that used by Sir Leonard Rogers (approximately 2 ounces per minute) and the transfusion lasts (approximately) 1½ hours Less bodily disturbances

FIG 1



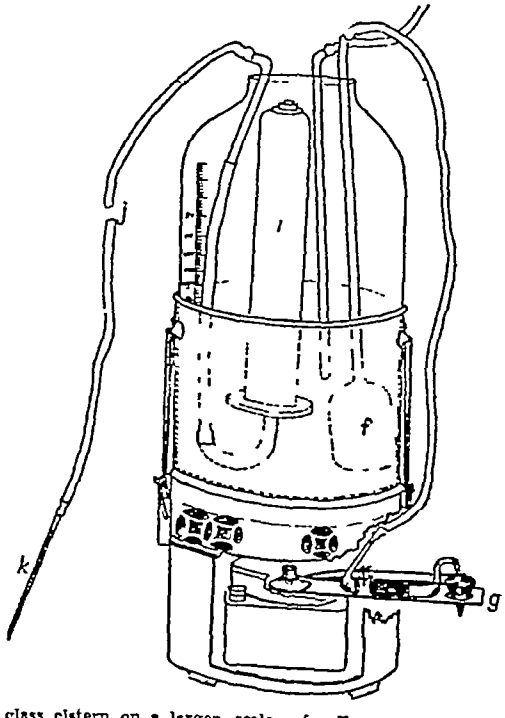
Earlier form of transfusion apparatus taken from a Report on an Outbreak of Asiatic Cholera in Shanghai during the Summer of 1907 by Stafford M Cox M D (Methodist Publishing House Shanghai 1908) a Glass cistern b Metal stand consisting of two compartments—c a chamber for the spirit lamp and d water bath for cistern e Spirit lamp l Reservoir of saline m, Feed tube from reservoir to cistern.

and a more permanent condition of reaction result 5 The reaction rigor is obtained A detailed description of the apparatus is omitted, as apart from the sets (40) provided for the use of the writer it is not available. The illustrations given (Figs 1 and 2) depict an earlier form of the apparatus but the essential features apart from the heat regulating apparatus can be readily improvised and the procedure and requirements for doing so will now be detailed

Requirements

1 A Berkefeld filter candle (the type used in the Berkefeld travelling pump) Efficient English substitutes of similar size are now procurable 2 A wide mouthed jar (preferably of glass) as a reservoir with a capacity of 4–5 pints 3 2½ yards of rubber tubing—viz an upper length of 1 yard and a lower of 1½ yards, joined either by a piece of glass tubing which will serve as an observation tube for bubbles or a glass bubble-catcher 4 A glass cannula made with a bulbous neck giving secure invagination in veins of different calibre, and with a fine point to facilitate

FIG 2



The glass cistern on a larger scale. *f g* Temperature regulating mechanism *f* Berkefeld filter core. *j* Position of glass bubble-catcher or of observation tube. *k* Glass cannula for insertion into vein

entry This can readily be drawn in a spirit flame 5 A bath thermometer taken from its wooden case and allowed to float in the reservoir 6 Some 10–12 bottles (peroxide of hydrogen type) with glass stoppers and wire fittings, to be ready filled with hypertonic saline (1 33 per cent), 6 with hot and 6 with cold saline 7 A Berkefeld travelling pump (similar sized English can now be obtained) 8 If a bubble-catcher is used it will replace the observation tube joining the rubber lengths It can easily be made from a small glass syringe by removing the piston and replacing it with a cork (preferably of rubber) pierced with a piece of glass tubing 4 inches long with an equal inside and outside projection The bubble-catcher must be held in a vertical position by strapping during infusion

Nos 7 and 8 are recommended if available, but are not essential At least 20 per cent of candles show faults In the absence of a bacteriological examination of filtrate the candle should be tested by blowing through a short rubber attachment into the emptied and damped chamber whilst submerged in water Small faults, shown by a stream of bubbles can be closed with cement or plaster-of Paris

Sterilising often causes faults and should be started at a moderate temperature using a tray A good effective sterilisation can be made by placing the candle in a Berkefeld travelling pump and driving a solution of hot permanganate of potash through If a steriliser or pump is not available the candle should be repeatedly filled and emptied with the same solution

Causes of ineffective flow are —1 Deposit of salt crystals Treatment Light brushing running through with Berkefeld pump in hot water 2 Lessening of filtration area from the presence of air in the inverted chamber Treatment Remove the cannula restore the candle to erect position in the reservoir, dislodge the air, reinvert and return cannula to the vein

The rubber tubing is best disinfected by boiling or syringing through with boiling solution of permanganate The connexion should be secured with soft silk.

For a delivery into the vein at 99°-100° with summer heat conditions using a tubing 2½ yards long, a cistern elevation from the vein of 3 feet, and a cannula with a bore which gives 2 ounces of saline per minute in a jet 3-4 inches high, the temperature at which the cistern saline will require to be maintained will be found to be between 105°-108°

As to the procedure for infusion, the filter candle (scrubbed, tested, and sterilised) is filled by hanging on the side of the elevated cistern (filled with saline at the appropriate temperature), the rubber tubing is then attached *in situ*, and the tube is milked till a current is established All contained air is then removed by placing the candle slantwise bodily in the container and raising the tubing to form an upward curve, using both hands As the right hand progresses with the air along the tube the left depresses the tubing emptied of air to prevent its return, and this procedure is continued till the uptilted cannula is reached The candle is then inverted in the cistern and the apparatus is ready for use, if a bubble catcher is used inversion is not necessary

Intravenous Infusion

An adequate reaction proportionate to the degree of collapse must be looked for and assisted This condition is never attained until the infusion reaction rigor (which occurs approximately when 5 pints have been infused) is well passed The continuance of the saline infusion after the occurrence of the reaction rigor up to 8-10 pints will procure the following benefits 1 Dilution of the blood 2 Elevation of the blood pressure, with re establishment of suppressed renal flow 3 Elimination of the endotoxins from the blood and later from the stools, thus obviating the onset of the febrile reaction stage of cholera, the remainder of the illness being usually apyrexial No apprehension need be felt at a rise of temperature to 103° during the infusion, in fact, this degree of temperature oscillation I consider the most favourable for cessation of infusion, provided that more than 6 pints have passed in If pyrexia of 103° is associated with the infusion of less than 6 pints, the temperature of the saline in the cistern should be lowered and the infusion continued

Where the stools are sanious (a condition usually associated with a high rectal temperature) the saline should be infused at 98° or less, and 5 or 6 pints used Such cases need a specially careful treatment, the associated dysenteric condition being only benefited indirectly by the relief of the collapse

Strangely enough, I have found marked collapse when it is due solely to the loss of blood fluids a favourable index in prognosis as showing an absence of febrile complications and such cases, however profoundly collapsed, give excellent results In such instances where the pulse is absent and death seems imminent, the rate of flow should be started at 4 ounces per minute until the pulse returns If delivery of saline to this extent cannot be obtained by elevating the cistern and using a cannula of a wider bore a vein on the opposite side should be opened and fed from an additional candle which may be placed in the same container On the return of the pulse to the wrist, one apparatus will be found sufficient to ensure reaction

The associated conditions in this form of collapse are (1) Marked plasticity of the skin, (2) great backward swing of the body heat as evidenced by icy chilliness of the extremities, an oral temperature of 95°-96° and a rectal somewhat higher, (3) an unrecordable blood pressure, (4) a blood specific gravity in the neighbourhood of 1080, and (5) usually intense cramps In such cases a marked rigor must be expected and hot water bottles and blankets held in readiness usually also a 1/40 grain of morphia with 1/100 grain of atropine hypodermically will be found useful, after the rigor is passed

The preparation of the vein selected is carried out in the usual way, no anæsthetic is necessary, the cannula is fixed in position by adhesive strapping the arm placed on a splint and secured to a bedstead in anticipation of the muscular movements caused by the reaction rigor Straw palliasses and tin floor trays are advisable If the hospital has a more or less permanent character a tin floored transfusion room is recommended

That the reaction induced by saline transfusion may to some extent be due to a toxemia induced by the endotoxins of water borne bacilli used in the infusion is possible, that it entirely accounts for the reaction rigor I do not believe In any case it will be interesting to see to what extent the phenomena of the infusion reaction will be modified by filtration previous to boiling

REMARKS ON THE

CAUSE AND NATURE OF THE CHANGES WHICH OCCUR IN MUSCLE AFTER NERVE SECTION

BY J N LANGLEY SCD FRS,
PROFESSOR OF PHYSIOLOGY CAMBRIDGE.

TWO theories have been put forward to account for the obvious fact that section of a nerve causes trophic—i.e., nutritive—changes in the muscle it supplies One is that there are special nervous impulses affecting nutrition different from those causing contraction Since there is no independent evidence of the existence of such impulses, this theory has received little support The other is that the maintenance of the nutritive condition of the muscle depends upon its contracting at intervals, so that when the normally occurring contractions are prevented by nerve section the nutritive condition of the muscle suffers, and it gradually loses weight and decreases in irritability This theory has in its favour the fact that normally the size of muscles is, within certain limits, dependent upon exercise In accordance with it the wasting of denervated muscle is spoken of as "disuse atrophy," and largely on the basis of this theory it is a common practice to induce contraction in paralysed muscles by stimulating them with condenser or galvanic currents If this theory were true a certain degree of contraction brought about by electrical stimulation would keep the denervated muscles in a normal condition It need hardly be said that this never occurs in clinical practice In man the degree to which electrical stimulation prevents wasting of the muscles cannot be determined with any accuracy A few experiments on this point were recently made on rabbits by Professor Kato and myself.[1] The tibial or peroneal nerves were cut on both sides and the paralysed muscles stimulated on one side with condenser currents Taking the weight of the muscles on the unstimulated side as a standard the percentage gain in weight on the stimulated side in the four experiments made was 18 days, 0, 28 days, 22 9 per cent, 36 days 9 8 per cent, 71 days, 10 3 per cent These experiments whilst suggesting that contraction delayed the wasting of the muscles, were not definitely in favour of the theory of disuse atrophy" for in each experiment great wasting of the muscles occurred and the sluggish response to electrical stimulation characteristic of denervated muscle was not prevented Further the difference in weight on the two sides might possibly be due to individual variation, and I have since found variations up to about 7 per cent in the weight of the muscles on the two sides in normal rabbits[2] In the experiments mentioned above the extent of daily stimulation was not the same in the several experiments it varied from less than to about that usually applied in cases of man The absence of decisive delay of atrophy might then be due to the degree of stimulation being insufficient I have in consequence made two further experiments on rabbits in one stimulating for about 2½ hours a day for rather more than three weeks and in the other extending and flexing the limb for a like period In neither case was there any certain delay in the wasting of the muscles

Since, then, contraction of the muscles neither for a short daily period nor for a long daily period prevents the wasting of the muscles nor the occurrence of sluggish contraction, I conclude that the changes which take place in muscles after nerve sections are not due to absence of contraction and that the term disuse atrophy' is a misnomer In this case we have to look for some other cause of the atrophic and other degenerative changes It was noticed by Professor Kato and myself that muscles from about the fourth day after section of their nerves are in a state of continuous fibrillation—i.e. the separate muscle fibres contract rhythmically but with different rhythms, the muscles present a shimmering appearance when viewed by light reflected from their surface The contractions cause no movement of the muscle as a whole

[1] Journal of Physiology [illegible]

It may be mentioned that [illegible] for signs of previous injuries. This in one case in which [illegible] tibial nerve on one side was [illegible] the great [illegible] side was heavier than that on the side [illegible] examination of the bones [illegible] that the lowering had [illegible] in consequence had [illegible]

and are easily overlooked, possibly they could be shown in man by the use of the string galvanometer As each fibre contracts many times a minute the total expenditure of energy in the day must be considerable. It is, then, I think, reasonable to suppose that this continued activity of the muscle fibres must cause fatigue and that the atrophy of muscle is due to too great rather than to too little functional activity The changes in reaction which occur in denervated muscle are, in fact like those caused by fatigue. I have, however, not found any definite evidence that the stimulation is harmful With regard to this, it has to be borne in mind that contraction drives on lymph and tends to prevent the accumulation of metabolic products It may also cause an after increase of the blood flow, and in the later stages of paralysis at any rate when the blood-vessels have recovered tone, this would no doubt be beneficial But on the whole it appears to me probable that it would be better to obtain these accessory results of contraction without the contraction itself. And in the recent discussion on Dr F Hernaman-Johnson's paper on the use of condensers in the treatment of nerve lesions[3] Dr E P Cumberbatch states that he has obtained good results by the use of sinusoidal alternating currents not causing contraction

There are two points I would comment on with regard to the reaction of denervated muscle to electrical stimulation

1 Cases were early noticed in man in which, after nerve severance, voluntary power may return before the response to faradic currents, and in the recent use of condenser currents it has been found that voluntary power may return without a return of response to condenser shocks of short duration

It has long been known that in the early stage of regeneration tetanising currents applied above the point where the ends of the severed nerve were united will cause contraction whilst similar currents applied below it have no, or less effect Some instances of this in the limb nerves are given by Howell and Huber,[4] together with earlier references, and I have found a similar condition after joining the vagus to the cervical sympathetic.[5] The result has been spoken of as showing that nerve fibres in regeneration recover conductivity before irritability The difference is probably one of difference of response to currents of different duration and to this may be attributed the return of voluntary power before return of response to currents of short duration

2. The fact that faradic currents as applied in testing the reaction of muscles in man cease to cause contraction four to seven days after nerve severance, whilst recognised as partly due to the disappearance of nerve irritability is often taken as showing that the muscle fibres themselves have lost their irritability to faradic currents In support of this view it has been urged that in animals the effect of the nerves may be abolished by curari without abolishing the faradic irritability of the muscles so that in man the disappearance of the latter must be due to a change in the muscles But several observers have noted response to faradic stimulation in the exposed muscles of animals several weeks at any rate, after denervation, and I have obtained it in the exposed muscles of the rabbit at all times up to 10 weeks the longest period I have tried In consequence I should attribute the absence of response which occurs in man to the currents employed being too weak.

I have not made sufficient experiments to be certain of the progress of decrease of irritability to induced currents in denervated muscle but so far as my experiments go it is slow and gradual In lower vertebrates the irritability of muscle fibres is greater in the region near the nerve-ending—the neural region—than in other parts of the fibre and no doubt the same is the case in the mammal. In this case the extent of the contraction on stimulating the denervated muscle directly will depend on the position of the electrode with regard to the neural regions of the muscle fibres In general most of the neural regions lie in an oblique band somewhere near the middle of the muscle and are absent in the end portions

It is possible that a sudden drop of irritability occurs in the neural region in the later stages of denervation, I have not noticed this in my experiments but some recent observations of Professor Noel Paton and D L Findlay[6] suggest its occurrence when galvanic currents are used

[3] Proc. R. Soc. Med. Surgical Sect. 1916, p 1 [4] THE LANCET Feb 1, 1913, p 331 [5] Journal of Physiology xlii, p 343 1912. [6] Ibid xlviii, p 25 1914 [7] Ibid l p 183 1916

THE DIAGNOSIS OF CANCER OF THE STOMACH[1]

BY JAMES ALEXANDER LINDSAY M D R U I, F R C P LOND,

PROFESSOR OF MEDICINE IN THE QUEEN'S UNIVERSITY OF BELFAST

CANCER of the stomach is from several points of view one of the most important conditions which claim our attention It is important from its frequency The stomach comes next to the uterus as the seat of cancer Cancer of the stomach accounts for 1 5 per cent. of all deaths occurring in hospital practice It is important because early diagnosis is often a matter of extreme difficulty and also of the greatest importance, if operative intervention is to have any fair prospect of success It is important, finally because to suggest to a patient an unfounded suspicion of cancer is one of the most serious and unfortunate of errors

During the last 14 years 40 cases of cancer of the stomach have occurred in my practice at the Royal Victoria Hospital I am much indebted to my assistant, Dr S I. Turkington, for the careful manner in which he has collected and collated this material for me. I shall confine myself to the diagnostic problem, leaving the question of operative measures in the very capable hands of Mr A B Mitchell.

1. *Age of patients*—No case occurred under 30 years of age. Fourth decade 5 cases 12½ per cent, fifth decade, 7 cases, 17½ per cent, sixth decade, 19 cases, 47½ per cent, seventh decade, 8 cases 20 per cent., over 70, 1 case 2½ per cent These figures are in accord with general experience The disease falls mainly upon the fifth, sixth, and seventh decades of life with a slight preponderance in the sixth decade Cases are not unknown in earlier life. The disease is not rare at advanced ages

2. *Sex*—Males, 23, females, 17 Most observers report a preponderance in the male sex The proportion is usually given as 5 to 4 which is in close correspondence with my own figures Some authorities report a considerably higher proportion of males while Fenwick thinks that the sexes suffer equally The Registrar General's Reports for England and Wales (1901-1909) show that in males cancer of the stomach accounts for 21 4 per cent. of all deaths from cancer, but in females the figure is only 14 2.

3 *Family history*—There was a clear family history of cancer in 4 cases—i e., in 10 per cent In a fifth case there was a history of doubtful 'gastric disease' One woman stated that her husband had died of cancer In the remaining 34 cases the family history was unimportant

4 *Personal history*—A history of previous gastric ulcer was obtained in only 5 cases—i.e. 12½ per cent There is a curious almost disconcerting discrepancy between physicians and surgeons as to the frequency with which simple gastric ulcer precedes gastric cancer Habershon found this sequence in only 5 cases out of 340 Fenwick puts the proportion at 3 per cent. Osler found the sequence in 4 cases out of 150 On the other hand Mayo puts the proportion at 54 per cent and Mornihan at 72 per cent This is a very important matter from several points of view If the higher figures are correct we shall be compelled to regard the remote dangers of gastric ulcer much more seriously than we have hitherto done. Further physicians have been in the habit of regarding the comparatively abrupt development of painful dyspepsia after the age of 40 as one of the most significant indications of commencing gastric cancer It is evident that if simple ulcer is a common antecedent of gastric cancer this rule will fail us It is not easy to reconcile the higher figures with the preponderance of cancer in the male sex, nor with the marked contrast between the results of the examination of the gastric contents in the two conditions My figures support the views of Habershon, Fenwick, and Osler

Four patients gave a history of alcoholic excess Osler found this history in 8 cases out of 150 There is no reason to conclude that alcoholism is a factor in the causation of gastric cancer

In 26 out of my 40 cases the previous digestion of the patients was reported to be good

5 *Medical and surgical symptoms*—"Signal symptom

[1] Introduction to a recent discussion in the Ulster Medical Society

or symptoms"—i e, symptom or symptoms which first attracted the patient's attention

(a) Painful dyspepsia	15 cases	37½ per cent
(b) Vomiting and pyrosis	9 ,,	22½ ,,
(c) Loss of weight	6 ,,	15 ,,
(d) Progressive weakness and anæmia	4 ,,	10 ,,
(e) Hæmatemesis	3 ,,	7½ ,,
(f) Anorexia	2 ,,	5 ,,
(g) Melæna	1 ,,	2½ ,,

This table is important, as in practically every case of gastric cancer symptoms precede signs, and early diagnosis is dependent mainly upon symptoms

Painful dyspepsia was the earliest initial symptom in the largest group of cases, and this is in accord with general experience The pain is less severe than in simple ulcer, it is less definitely referred to the epigastrium or the back, it tends to radiate towards the hypochondria, its relation to the ingestion of food is less close, local tenderness is, upon the whole, less marked and less definitely localised, if vomiting ensues the relief of pain is less complete than in simple ulcer Hale White's rule is valuable—"Painful dyspepsia arising for the first time in a patient over 40 should lead to inquiry for gastric cancer" Constipation is the almost invariable rule in these cases

Vomiting and pyrosis marked the onset in the next largest group of cases—9 cases out of 40 When occurring early in the disease, these symptoms may depend upon gastric catarrh; when occurring later they suggest interference with gastric motility, and their time relation to the ingestion of food depends upon the seat of the growth, being earlier in cancer of the cardia, later in pyloric growths The vomited matter may be mucous, watery, rarely bilious, often offensive Blood is present in the vomit in 42 per cent of cases, according to Brunton It may take the form of "occult blood"

In 6 cases out of the series the first symptom to attract attention was an unexplained loss of weight Careful weighing is a matter of the first importance when the presence of gastric cancer is suspected The weights on admission in my series of cases were as follows Under 6 st, 3 cases, 6 to 7 st, 5, 7 to 8 st, 8, 8 to 9 st, 8, 9 to 10 st, 8, 10 to 11 st, 2, over 11 st, 1, no record, 5 Of the 6 cases where loss of weight was the "signal symptom," 2 had lost 3 st, 1 had lost 2 st, and the remaining 3 had lost smaller amounts Sixteen cases gained weight while under treatment, of whom 5 gained 1 lb, 4 gained 2 lb, 1 gained 3 lb, 3 gained 4 lb, 2 gained 6 lb, and 1 gained 10 lb

In 4 cases—10 per cent—the earliest symptoms were progressive weakness and anæmia This is an important group, as in it the difficulties of diagnosis are often at a maximum Pronounced blood changes are usually late in the disease, but in an important minority of cases anæmia may be early and marked The red cells may fall to one and a half millions or less, poikilocytosis may be pronounced, and microblasts and megaloblasts may be present The distinction from pernicious anæmia may be difficult, or even for a time impossible

In 3 cases—i e, in 7½ per cent—hæmatemesis was the first symptom to attract attention This is unusual but, as already stated, its occurrence at some stage of the disease is common Brunton says 42 per cent, Boas 36 per cent The amount of blood lost is rarely large A free hæmorrhage speaks for ulcer rather than for cancer

Anorexia was noted as the "signal symptom" in only 2 cases of the series It is probable that the hospital records or the memory of the patients was in error on this point General experience testifies that a somewhat abrupt failure of appetite, especially for flesh foods, is common in gastric cancer, and that its diagnostic importance is considerable It is, of course, important to exclude other possible explanations of the anorexia of which alcoholism, avowed or secret, is one of the most common

In only 1 case in the series was the patient's attention first arrested by an attack of melæna It is probably quite rare as an initial symptom Later in the disease melæna often in the form of "occult blood," is common

6 *Pyrexia*—Some rise of temperature was noted in no less than 19 cases of the series—i.e., in nearly one-half In 11 cases the temperature did not exceed 100° F in 4 cases it ranged from 100° to 101°, in 3 cases from 101° to 102°, in 1 case it exceeded 102° Osler noted pyrexia in 74 cases out of 150—a proportion similar to my own Boas reports a series in which pyrexia was present in 24 6 per cent. Fenwick found that two-thirds of his cases were afebrile Habershon thinks that a subnormal temperature is the rule.

7 *Examination of the gastric contents*—In a well established case of gastric cancer the gastric findings when a test meal is given, if not absolutely pathognomonic, are often characteristic and suggestive The usual picture is as follows (a) Evidence of gastric stasis, food being present in the stomach six or seven hours after the last meal, (b) free HCl absent or much reduced, (c) lactic butyric and valerianic acids often present, (d) occult blood present in the stomach washings, and (e) the Oppler Boas bacillus present

We need further information as to the gastric findings in early cases of gastric cancer Too much reliance must not be placed upon the presence or absence of free HCl Its absence or marked reduction is the rule, but the exceptions are numerous In a series of 343 cases collected by Moynihan free HCl was absent in 89 7 per cent Osler records its absence in 84 cases in a series of 94 Dieulafoy attaches much importance to this sign, but gives no figures In my own series free HCl was absent in 71 per cent of cases tested It must be borne in mind that free HCl is absent in many other conditions—e g, chronic gastritis gastric fibrosis, pernicious anæmia, and Addison's disease Free HCl is said to be more frequently present in cases of gastric cancer where simple ulcer has been an antecedent than in cases where this history is wanting The presence of lactic, butyric, and valerianic acid, and of the Oppler Boas bacillus is evidence of fermentation, but has not necessarily any further significance Dieulafoy is of opinion that the anachlorhydria of gastric cancer and of chronic gastritis can be distinguished by testing the ferments Total disappearance of the pepsin and the rennin points to gastritis, disappearance of the pepsin alone points to cancer The presence of cancer cells in the stomach washings has been reported, but this is unusual, and is improbable in early cases

8 *Presence of tumour*—A tumour was detected in 15 cases of my series—37½ per cent Osler found a tumour in 115 cases out of 150 Brunton held that a tumour could be detected in 80 per cent of cases at some stage of the disease Taylor says that a tumour is rarely to be detected during the first three or four months Its value as a "signal symptom" is not great Some good authorities hold that when a tumour can be detected the growth is no longer local, and that the time for a radical operation is past This view is contested by Kocher and by Moynihan

The seat of the tumour in gastric cancer is variable It may be felt in the epigastric region, the umbilical region or in either hypochondrium It is usually hard tender, movable and often nodular Its mobility varies with its seat Pyloric tumours are the most movable The tumour is occasionally visible on inspection

9 *Complications*—Enlargement of the liver was noted in 9 cases of the series Enlargement of the supraclavicular glands was noted in only 1 case Some observers attach much importance to this sign and find the enlargement much more frequent on the left side than on the right Four patients in my series had albumin in the urine One patient had pyuria. These features were probably accidental No case of phlegmasia was recorded Trousseau attached much weight to this complication as a help to diagnosis and Dieulafoy agrees with this view Jaundice was not noted in any of my cases It is rare at an early stage but may arise when the liver or the pancreas has become involved secondarily

Let us now consider the general question of the diagnosis of gastric cancer in its earlier stages The following are the chief points which will repay attention.

A *History*—The most usual history as we have seen is that of painful dyspepsia setting in sometimes rather abruptly, and without assignable cause in a patient over 40 years of age whose digestion in most cases has been previously good In the next most frequent group the early symptoms are those of gastric catarrh In the third group in point of frequency the early symptoms are those of gradual failure of health progressive asthenia loss of weight with or without important blood changes Exceptionally the blood changes arise early and may simulate pernicious anæmia In a fourth group the history is that of a chronic gastric ulcer which has resisted treatment

B *Early symptoms* —Loss of appetite may be early and marked, and may be the first symptom to attract attention Oftener it develops gradually It is usually a prominent feature in established cases but I have known the appetite to remain good until three months before death. The dyspepsia of gastric cancer has the following features It is attended by discomfort and pain, sense of fullness in the epigastrium nausea sickness, eructations of offensive gases, and in most cases vomiting These symptoms are at first related to the ingestion of food but at a later stage they become more or less constant The vomit is grumous, offensive, and often contains blood, usually in small quantity The nature of the gastric findings has been already considered. Definite melæna is rare but "occult blood" is often found in the fæces In the later stages the dyspepsia is conditioned by disturbance of the gastric motility

C *Physical examination* —In most early cases the results of physical examination will be negative Tumour and signs of gastric thickening or dilatation belong to the developed disease

D *Differential diagnosis* —In a case of doubt or difficulty the following conditions may require to be differentiated from gastric cancer (*a*) Chronic gastritis, (*b*) non malignant gastric ulcer, (*c*) non malignant pyloric growth, (*d*) pernicious anæmia, (*e*) phthisis

(*a*) *Chronic gastritis* —Here the symptoms will probably be of longer duration than in gastric cancer Some cause for the symptoms such as dietetic error or alcoholism will usually be discovered. The loss of weight and the failure of the general health will probably be less marked, anæmia will be absent or slight Treatment will usually effect speedy improvement

(*b*) *Non-malignant gastric ulcer* —This is more common in youth and in the female sex. Pain is more violent and has a closer relation to the ingestion of food than in gastric cancer Hæmorrhage is often free, vomiting gives complete temporary relief to pain, hyperchlorhydria is the rule, localised tenderness in the epigastrium is common, the anæmia present is of the chlorotic type Treatment will bring about speedy improvement

(*c*) *Non malignant pyloric growth* —History, symptoms constitutional condition blood conditions and an examination of the gastric contents may clear these cases up, but as exploration is now practically free from danger it may be freely resorted to when an exact diagnosis is urgent

(*d*) *Pernicious anæmia* —In those exceptional cases of gastric cancer where a profound anæmia of pernicious type overshadows the gastric symptoms the difficulty of differential diagnosis may be great The blood examination may be indecisive though a red blood-count of less than 2 000,000 is rare in gastric cancer common in pernicious anæmia None of the figured elements are absolutely pathognomonic of pernicious anæmia. The lemon tint of skin so characteristic of pernicious anæmia is not unknown in gastric cancer Wasting is more marked and more rapid in gastric cancer than in pernicious anæmia. Dyspeptic symptoms will probably be less marked in the latter disease and a course of arsenic will usually effect marked temporary improvement It is a useful clinical rule not to make a final diagnosis of pernicious anæmia until we have weighed the possibility of gastric cancer

(*e*) *Phthisis* —Very exceptionally difficulty may arise in the differentiation of incipient phthisis and early gastric cancer Both diseases may set in with a vague failure of the general health loss of weight anæmia and asthenia, without definite localising symptoms Dyspepsia is occasionally a prominent feature of incipient phthisis. A mild continuous pyrexia may be present in either disease But the distinction is rarely difficult. Cough is not long delayed in commencing phthisis, there is usually decided acceleration of the pulse, night sweating or hæmoptysis may supervene a careful examination of the chest may reveal characteristic signs family history may give a hint None of the various tuberculin tests can be relied upon in a doubtful case

There is no royal road to the diagnosis of early gastric cancer The difficulties are often great. But a careful review of all the facts of the case history and symptoms being accorded much weight and the full utilisation of all modern methods of inquiry will usually enable us to arrive at a sound opinion Time and the negative results of treatment are the final test

One interesting question remains for consideration—Is *cancer of the stomach on the increase?* The Registrar-General's returns show that in 1897 the deaths from cancer of the stomach were Males, 135 per 1 000,000, females, 123 per 1 000,000 In 1910 the figures were Males, 185 per 1,000,000, females, 155 per 1,000,000 This represents an enormous increase, but it is a question how far it is real, how far only statistical The problem of the increase of cancer, like that of the increase of insanity, is very complicated How far more accurate diagnosis accounts for the increase in the cancer figures, how far the diminished mortality from tuberculosis and the higher average of longevity react upon the incidence of cancer are questions of great interest upon which we should welcome further information

Belfast

ON A SUBSTITUTE FOR PEPTONE AND A STANDARD NUTRIENT MEDIUM FOR BACTERIOLOGICAL PURPOSES

Report to the Medical Research Committee

BY SYDNEY W COLE M A.,
UNIVERSITY LECTURER IN MEDICAL CHEMISTRY CAMBRIDGE
AND
H ONSLOW
TRINITY COLLEGE, CAMBRIDGE.
(*From the Biochemical Laboratory Cambridge*)

EVEN before the war the preparation of a standard broth for bacteriological purposes was a matter of considerable difficulty, since different samples of Witte's and other peptones exhibited such marked variations when employed in nutrient media that the cultural features of an organism were apt to vary with each sample used Since the cessation of the supply from Germany this trouble has been accentuated and in work that we have been doing for the Medical Research Committee on the differentiation of the members of the colon typhoid group we have felt it acutely, because the results obtained when a given sample of peptone is used cannot be repeated with certainty with another sample This is, in truth, readily explained "Peptone" is no more than a name which may stand for widely varying substances Usually it consists of a mixture of proteoses, peptones and polypeptides which differ enormously both in complexity and amount according to the materials employed, the length of digestion allowed, and the exact method of preparation followed.

Now it is probable that non proteolytic organisms cannot utilise the higher proteins as food substances and that even the proteolytic organisms grow more readily at first in media which contain an adequate supply of immediately available food material The nitrogenous substances used by the growing organism are in all probability mainly free amino-acids together with small amounts of other substances that have not as yet been determined

In the work that we are conducting we have found a sharp criterion for a standard nutrient medium If a medium containing a fermentable carbohydrate be sown with a specific organism a definite final hydrogen ion concentration is reached This is dependent in a remarkable degree upon the constitution of the fluid a very slight change in which may cause a considerable variation in acidity This effect is most clearly seen if more than one organism be employed In fact we have often noticed that the degrees of acidity produced by two organisms may actually be inverted

With these views and facts before us experiments were made with various media containing an abundant supply of these amino-acids The growth on such media of a large number of pathogenic organisms is so rapid compared with their growth on the recognised standard media that we think it desirable to publish the method of preparation in the hope that it may be of general value as a cheap and effective substitute for peptone and nutrient broths We also describe a simple method of standardising the reaction of media the

usual laboratory practice of titrating against litmus or phenolphthalein being extremely unsatisfactory

The supply of free amino acids is best obtained by the tryptic digestion of casein, and to procure uniform results a pancreatic extract is used, prepared by a method that has for some time been employed in our laboratory, and which follows a formula given by Mellanby and Woolley It is true that this preparation is not a standard one, because the proteolytic activity varies in a way that cannot be controlled We have thought it undesirable to complicate the technique by a preliminary standardisation of the tryptic value of the extract, but with the amounts of ferment and the length of digestion used we think that a sufficient degree of hydrolysis is reached to give practically uniform results

The details of the preparation of the pancreatic extract, the tryptic broth, and the method of standardisation are as follows —

Pancreatic extract —Obtain the fresh pancreas of a pig, free it from fat as far as possible, and weigh Mince it finely and add three times its weight of distilled water and its own weight of strong alcohol Shake well in a large bottle and allow it to stand for three days at room temperature, shaking the bottle occasionally Strain through muslin and filter through a large folded paper The filtrate, which comes through very slowly, is measured and treated with 1 c c of concentrated hydrochloric acid for every litre This causes the appearance of a cloudy precipitate which settles in a few days and can be filtered off The fluid keeps for an indefinite period if stoppered, without any additional antiseptic If desired at once the extract may be used before adding the hydrochloric acid the function of which is to retard the slow auto-destruction of the trypsin

Digestion of the casein —We have tried various commercial preparations, and have finally decided to employ a product made by "Casein, Limited"[1] This is prepared by a standard method yielding a product which in our experience is practically uniform and remarkably free from carbohydrates and free alkali The firm has consented to supply the material under the name of "Laitproto, No 6 for bacteriological purposes" To 1 litre of tap water add 20 gm of anhydrous sodium carbonate and boil in a 2 litre flask or large evaporating basin When boiling transfer the vessel to a boiling water bath and gradually add 200 gm of the casein This must be "dusted" in carefully and well stirred to avoid the formation of lumps Transfer to a Winchester quart and wash out the mixing vessel with a litre of cold tap water, which is also transferred to the bottle If necessary, allow the temperature to fall to 40° C and add 50 c c of the pancreatic extract and 15 c c of chloroform Shake well, stopper with a loose cork, and incubate at a temperature of 37° to 40° C , shaking the bottle vigorously each day to break up any lumps After five days' digestion add another 50 c c of the pancreatic extract and allow the mixture to stand for another 10 days—that is, not less than 15 days' digestion in all

Preparation of the stock broth —The warm mixture is well shaken to break up any crusts of tyrosine that may have formed, and is transferred to a large (3-litre) flask, treated with 400 c c of normal HCl (or 40 c c of pure concentrated HCl diluted with 360 c c of water) shaken, steamed for 30 minutes, and filtered The filtrate is treated with 120 c c of normal sodium hydroxide and the reaction adjusted

Preparation of tryptic broth —The stock broth is diluted with twice its volume of 0 5 per cent sodium chloride dissolved in tap water and the reaction is adjusted

Adjustment of the reaction —It is now well known that the most significant point in the standardisation of media is a constancy in the hydrogen ion concentration This cannot be obtained by the ordinary methods of titration It may be found accurately by "electric titration,' but this method is too complicated for routine work A very close approximation is reached by following Sorenson's procedure of colorimetric comparison The principle of this method is that when a given amount of a suitable indicator is added to a given volume of two fluids the colours produced are identical if the hydrogen ion concentration of these two fluids is the same This is subject to certain qualifications since the colour produced with some indicators is affected by the constituents of the fluid

For standardisation of the broth a hydrogen ion concentration was chosen of about $P_H = 7 35$ (i e , a concentration of hydrogen ions per litre of 10^{-} or $4 47 \times 10^{-8}$) This is a reaction very near to that of blood serum and also near the optimum for the growth of most pathogenic organisms

Our method of standardisation is based on Walpole's[2] principle of eliminating the colour of the broth by use of a special tintometer This procedure was modified by Hurwitz Meyer and Ostenberg[3] We think we have improved upon their technique and find that our results can be repeated by laboratory assistants having no previous knowledge of the method Our modification consists in treating two phosphate solutions of a definite hydrogen ion concentration of $P_H = 7 3$ and 7·4 respectively with 1/10 of their volume of a 0·01 per cent solution of phenol sulphone-phthalein (the indicator used by the American workers) 5 c c of the broth are also treated with 0 5 c c of the indicator solution and are then titrated with standard acid or alkali (containing the correct proportion of indicator) until the colour of the broth is intermediate between that of the two standard solutions Since the broth itself is coloured this has to be compensated for by observing the standard tubes through a layer of broth We have designed a special holder for the tubes which is shown in the figure By the use of two standard tubes we find that we can adjust the reaction more exactly than by comparison with the single standard employed by Hurwitz, Meyer, and Ostenberg Test-tubes of thin clear glass are used, having an external diameter of five-eighths of an inch These can be obtained from Messrs Baird and Tatlock, 14 Cross street Hatton garden, London, E C ("tubes for colorimetric comparison") The tube holder is supplied by Mr C H Nicholl 1, Mackenzie-road Cambridge

The following solutions are required —

A *The indicator* —0·1 gm of phenol sulphone phthalein (which may be obtained from Martindale, 10, New Cavendish street, London, W) is transferred to a litre measuring flask and treated with 10 c c of N/10 sodium hydroxide and about 500 c c of distilled water (previously boiled and cooled) 10 c c of N/10 hydrochloric acid are then added and the volume made up to 1 litre with distilled water

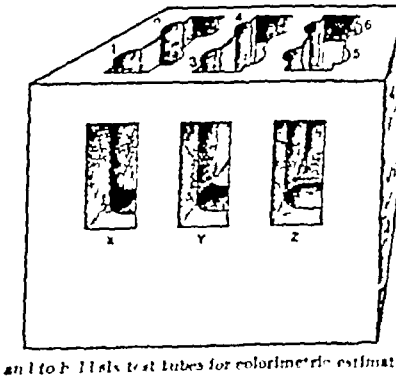
B *Phosphate mixture* $P_H = 7 3$ —Dissolve 9·085 gm of pure di sodium phosphate (Na_2HPO_4, $2H_2O$) and 2 133 gm of pure mono-potassium phosphate (KH_2PO_4 $2H_2O$) in distilled water and make up the volume to 1000 c c with freshly boiled distilled water To 100 c c of the phosphate solution add 10 c c of solution A, stopper, and keep in the dark

C *Phosphate mixture* $P_H = 7 4$ —Dissolve 9 596 gm of di sodium phosphate and 1 743 gm of mono-potassium phosphate in distilled water and make up the volume to 1000 c c with freshly boiled distilled water To 100 c c of the phosphate solution add 10 c c of solution A stopper and keep in the dark

D *N/20 hydrochloric acid* —To 1000 c c of N/10 HCl (or 100 c c N HCl) add 182 c c of solution A, and distilled water to make the volume up to 2000 c c Keep in the dark

E *N/20 sodium hydroxide* —To 1000 c c N 10 NaOH (or 100 c c of N NaOH) add 182 c c of solution A and distilled water to make the volume up to 2000 c c Keep in the dark

Six tubes are placed in the holes of the box and to them are added the following solutions —(2) and (6) Some of the broth



Small tube test tubes for colorimetric estimation

(4) Distilled water (1) Some of solution B (5) Some of solution C (3) 5 c c of the broth (accurately measured) and exactly 0·5 c c of solution A (It is essential that the broth for this tube should be boiled for half a minute in a test tube and well cooled under the tap before it is measured because subsequent sterilisation causes a change of P_H) The box is then held up to the light and the tubes examined by looking through the slots X Y Z It will then be noticed that Z is redder than X It is necessary to adjust the reaction of the broth in 3 so that Y appears to be intermediate in colour between X and Z If it is redder than Z it must be titrated with the acid solution D If it is yellower than X it must be titrated with the alkaline solution E

For the titration microburettes are employed containing 2 c.c graduated in 1 50 c c so that they can be read to 1 100 c c The acid or alkali is slowly added to Tube 3 until its colour is judged to be intermediate between the two standard tubes when they are viewed through the box. Should

[1] Casein Limited Culvert Works Battersea, S W

[2] Walpole Biochemical Journal vol v p 297

[3] Bulletin of the Johns Hopkins Hospital Baltimore vol xxvii No 299 p 16 (January 1916)

the titration be performed with the acid solution, allowance has to be made for the change in reaction that occurs from the loss of CO_2 in the subsequent sterilisations. A rough method of overcoming this difficulty is to boil the contents of Tube 3 for 15 seconds, cool thoroughly and add more acid until the reaction is again correct This may have to be repeated more than once Normal hydrochloric and normal sodium hydroxide (and N 10 HCl and N 10 NaOH if the total amount required is expressed in more than two decimal places) is then added to the bulk of the broth, depending on whether acid or alkali was used for the original titration. For every 0·1 c.c of N 20 acid or alkali required for the titration of 5 c.c., 1 c.c of normal acid or alkali is added to each litre of the tryptic broth If special accuracy is required the bulk of the media can be re-standardised after steaming Sterilisation by steaming on three consecutive days is preferable to autoclaving The medium is now ready for distribution and use.

We think we can substantiate the following claims for this broth —

1. It is *very much cheaper than peptone* and is at present about one-fifth the price of 2 per cent. peptone water not costing more than 1 5*d* per litre including the cost of the pancreatic extract, &c. used

2. It is sufficiently *constant in composition* to yield uniform results

3. The reaction is constant and can readily be brought to any desired hydrogen-ion concentration, though we suggest that the reaction we have chosen be adopted as a standard suitable for most purposes

4 On it a *luxuriance of growth* can be obtained with a rapidity that we have not approached with any nutrient peptone. With the colon-typhoid group a very distinct growth can usually be seen in four hours

paratyphosus A on glucose. Often in cases when no gas is produced on glucose peptone water the same organism grown in glucose-tryptic broth shows an appreciable amount in about 24 hours as is clear from the accompanying table. Tryptic broth diluted as above and 2 per cent. peptone water both containing 1 per cent. glucose and litmus as an indicator were the media compared, for gas production small Durham tubes of uniform diameter were employed and the amount of gas in them was measured in millimetres

Among other sugars investigated were dulcite, mannite, and lævulose but the above results obtained with glucose are almost identical with those obtained with the other sugars except that dulcite ferments the slowest

It was found advisable to dilute the tryptic broth with an equal volume of sodium chloride, because at this dilution acid and gas are more readily produced than in a higher concentration. Our previous work on the final hydrogen ion concentration reached in glucose solutions leads us to believe that organisms in media containing an abundant supply of nutrient substances will not attack the carbohydrate contained as readily as they will in a medium which is deficient in these substances A curious fact, however, has been noticed In the undiluted digest ("stock broth") acid and gas are produced some time later than in the diluted tryptic broth, yet at the end of about 14 hours the amount of gas formed in the stock broth equals that in the dilute broth, and subsequently the gas in the undiluted broth increases out of all proportion to that in other dilutions

7 The broth is an excellent medium for the preparation of agar, the requisite amount of agar being added to the tryptic broth prepared and standardised as above

8 Its standard composition also renders it admirably suited to special media such as Endo &c.

Table showing Acid and Gas Production on Tryptic Broth and Standard Peptone Water

Organism	Broth	5 hours		7½ hours		8½ hours		10 hours		12 hours		24 hours		48 hours	
		Acid	Gas	Acid	Gas	Acid	Gas	Acid	Gas	Acid	Gas	Acid	Gas	Acid	Gas
B paratyphosus A 16	Tryptic	−	0	−	0	++	0	+++	0	+−−	3	−−−	29		
	Standard	−	0	−	0	−	0	−	0	+−−	0	+−+	0	+−−	Trace
B. paratyphosus A 17	Tryptic	−	0	+	0	++	0	+++	0	−++	1	+−+	29		
	Standard	−	0	−	0	−	0	+	0	+++	0	+−+	0	+−+	0
B paratyphosus A 18	Tryptic	+	0	++	0	−−	0	−−−	1	+++	2	+++	3		
	Standard	−	0	−	0	−	0	+	0	+++	0	−−+	0	−−+	Trace
B paratyphosus B 5	Tryptic	+	0	++	0	−+−	1	+++	7	+−−	11	+−+	23		
	Standard	−	0	−	0	−	0	+−−	1	+++	1	+−−	5		
B typhosus 30	Tryptic	−	0	+	0	+++	0	−+−	0	++−	0				
	Standard	−	0	−	0	−	0	+	0	+−−	0				
B coli communis 23	Tryptic	−	0	−+−	5	−++	5	++−	12	+++	19				
	Standard	−	0	+−+	3	+−+	5	−−−	10	+++	18				
B coli communior 50	Tryptic	+	0	++−	7	+++	6	+++	16	++−	22				
	Standard	−	0	−+−	0	−−+	7	−++	13	−+−	21				

− indicates no change of reaction. + indicates fair acidity −− indicates marked acidity −++ indicates full acidity
The figures indicate the amount of gas in the Durham tubes measured in millimetres—e.g −+ 0 = marked acidity no gas

This luxuriance has not only been observed with the above group but also with B diphtheriæ and meningococcus (stock cultures). It is at present being tested with B tuberculosis gonococcus and other "delicate" organisms These results together with those on toxin production will be published shortly should they prove to be of any value

5 It is of the utmost use for testing *indol formation* owing to its richness in free tryptophane, the precursor of indol The indol reaction can be obtained in five hours with B coli, and after 12 hours a culture of typical strains of such an organism smells strongly of indol We can recommend the indol test devised by V E Nelson which depends on the orange colour produced by indol in the presence of vanillin and concentrated hydrochloric acid

6 When diluted with its own volume of 0 5 per cent sodium chloride it proves an excellent medium for the detection of *acid and gas* formation At this dilution it is much superior to the ordinary standard medium (2 per cent peptone water) It is true that the effect is not so marked with organisms that produce acid and gas readily but it is very evident with those that ferment slowly For example we find that we have entirely overcome the difficulty so often experienced in obtaining gas from many strains of

9 There are indications that the restraining power of brilliant green on B coli is especially selective in this broth, and we hope that the standard properties of the broth will make it possible to adjust it to any given sample of brilliant green once and for all, thus avoiding the necessity of re standardising for each sample of peptone. This and other points are, however still under investigation, but we hope to publish the results shortly

LITERARY INTELLIGENCE.—Dr T W Eden and Dr C Lockyer, obstetric physicians to Charing Cross Hospital, have just seen through the press a book entitled "Gynæcology for Students and Practitioners" The illustrations to the number of 500 have been drawn in most cases from originals in the Lockyer collection in the museum of the Charing Cross Hospital Medical School The volume will be published in July by Messrs J and A. Churchill —An anthology entitled "The Book of Sorrow," compiled by Captain Andrew Macphail, of the Canadian Army Medical Corps is announced for early publication by the Oxford University Press In the preface written in Flanders Captain Macphail explains that there is ample warrant for compiling now a task begun in times of peace "and offering as a comfort to other hearts what in the outset was designed for private luxury" The volume will be uniform in style with the "Oxford Book of English Verse"

THE SHOCKLESS OPERATION

By P LOOKHART MUMMERY, F R C S ENG,

SENIOR SURGEON TO ST MARK'S HOSPITAL, CITY ROAD E.C AND TO THE QUEEN'S HOSPITAL FOR CHILDREN HONORARY SURGEON TO KING EDWARD VII S HOSPITAL FOR OFFICERS AND SPECIAL CONSULTING SURGEON TO THE CITY OF LONDON AND FULHAM MILITARY HOSPITALS

SURGERY has at last succeeded in achieving the truly shockless operation, and it has become possible to perform a long and serious operation upon a patient with the certainty that shock will not complicate the procedure This is a great advance in the history of surgery, one comparable to the achievement of the aseptic operation as the result of Lister's discoveries, although not so important as the latter, since shock is not so dreaded or so common a complication as was sepsis before the discovery of antiseptics Like the discovery of antisepsis it is the direct result of the application of principles worked out in the scientific laboratory and subsequently applied in the operating theatre It is a brilliant result of the application of experimental science to operative surgery—the only true method of progress Like the discovery of antisepsis, it opens up all sorts of possibilities in the future and removes yet another of the barriers in the way of surgical enterprise It has now become possible to perform a serious and prolonged operation—such, for instance, as complete excision of the rectum or the removal of a large tumour from the abdominal cavity—without any fear of producing shock and in fact without any disturbance to the patient's general condition, without even increasing the pulse rate Further, it is now possible to perform serious operations upon quite elderly people and upon what the insurance companies call "bad risks" with a very considerable degree of confidence

The ideal method of repairing the human body, were it possible to treat it as a machine, would be to remove the damaged part, such as an eye, a foot, or a hand repair it under the best and most advantageous conditions, and then reattach it to the body to which it belonged, in the same way as we should do in the case of a motor car or any other man made machine By such a process, repairing the part would not cause any injury or inconvenience to the human body to which it belonged beyond that incidental to the body's being deprived temporarily of the part to be repaired Unfortunately, this method can never be possible in dealing with the human body, but the shockless operation is the same in principle The damaged part is isolated from the rest of the human body by local and regional anæsthesia while it is being repaired and at the same time the patient is kept in a condition of artificial sleep, so that the body, through the brain and special senses will not be damaged from the psychological influences incidental to the operation which is necessary to repair the damaged part

In a shockless operation the area of the operation is shut off from the sensorium by means of local anæsthesia This anæsthesia must be so complete that if the patient were conscious no pain would be felt Every sensitive tissue is injected with a solution of 1 in 500 novocaine before being divided, or what is better if it can be done the main sensory nerve trunks are injected so as similarly to shut off the desired area

The operation itself is performed in such a manner as to cause the least possible trauma—that is to say with light handling and sharp cutting tearing and blunt dissection being inadmissible Meanwhile the patient is kept in a condition of artificial sleep by a suitable combination of anæsthetics First of all a preliminary injection of morphia (or morphine and scopolamine) is given the dose of which varies according to the type of patient and is roughly from 1/8 to 1/3 gr This should be given an hour before operation, so that the full effects are felt at the time of induction of anæsthesia Secondly, a general anæsthetic is administered in order to keep the patient quite unconscious The object of the general anæsthetic however is only to produce unconsciousness and not relaxation or even anæsthesia The method of combining several forms of anæsthesia was first suggested by Dr G W Crile who called it 'anoci association' anæsthesia because its object was to cut off from the patient's central nervous system all noci (or harmful) impressions This name while it may have advantages from a purely scientific point of view, is rather clumsy and has little to recommend it Nor does there seem any necessity to label this method with a name It is simply an improved technique by which the shockless operation can be attained

The best general anæsthetic, in my opinion, is gas and oxygen, ether or chloroform being added if necessary, but only used in very small quantities and for a few minutes at a time, as, for instance to help during the induction of anæsthesia in a very muscular or alcoholic subject, or to tide over a period during which it is necessary to handle some part of the abdominal contents which cannot be properly isolated by local anæsthesia The form of gas and oxygen anæsthesia which appears to me to give the best results is by re breathing into a large bag, oxygen and fresh N_2O gas being added as occasion demands This is the method used by Mr J H Chaldecott who has given the anæsthetic for most of my cases, and the one with which I have certainly obtained the best results The total amount of gas used is very small, in one case only three-quarters of a 100 gallon cylinder of nitrous oxide gas was used in 1 hour and 50 minutes The patient is kept under the anæsthetic until he is back in bed, and in most cases is conscious in three or four minutes after the mask is removed

The important point about the general anæsthetic is that instead of the gas or drug being used, as hitherto, to produce anæsthesia, it is only given in sufficient quantity to produce unconsciousness, sometimes hardly that The ideal condition is the one in which the patient will react to stimuli will answer if spoken to loudly, or move if hurt I always ask the anæsthetist to let me know if he sees any sign of stimulation, as this is evidence that the local and regional anæsthesia is not efficient

Many factors have to be considered before successful results can be obtained Not the least important is the technique of the surgeon Those surgeons who tear and separate the tissues with their fingers and who perform most of the operation by what is called 'blunt dissection' can never hope to attain to the really shockless operation There are some surgeons whose only use for a knife is to cut through the skin, and who perform most of the operation with their hands assisted by blunt instruments They point often with pride, to the speed with which they can work and to the small amount of bleeding—advantages, it is true, but obtained at a heavy cost in other respects

The shockless method of operating involves a somewhat more elaborate technique, and, at first at any rate, takes longer than if a general anæsthetic alone is used With increased experience in the method the only extra time added on to the operation is that taken up in injecting the local anæsthetic, and should not amount to more than five or ten minutes in a long operation On the other hand, the shockless method of performing an operation makes the length of time occupied in performing an operation of much less importance since the amount of general anæsthetic used is relatively much less and shock cannot occur So far I have seen no harmful results from the injection of novocaine, even though I have often in a big operation used as much as 4 or 5 ounces of a 1-500 solution No difference can be seen in the tissues at the end of the operation and the healing of the wound is in no way altered or delayed The only contra indications to the method that there would seem to be are in some septic cases where there might be danger of spreading the infection by the injections and in some cases of cancer where there might be a similar danger of spreading cancer cells The latter should seldom occur as no operation for the removal of cancer should ever involve cutting through tissues infected with cancer cells In any case these objections do not apply if the nerve trunks are anæsthetised by regional anæsthesia.

The use of urea quinine hydrochloride has certain disadvantages It may cause an œdema lasting several days though I believe this is due to the use of too large and too concentrated solutions Personally I do not like to inject it into the immediate neighbourhood of the wound

The advantages of the shockless method of operating are much lighter anæsthesia with, consequently less probability of subsequent sickness almost complete absence of post operative pain absence of rigidity and most important of all complete absence of shock even after very long prolonged operations

[1] Crile and Lower: Anoci Association, 1913 Crile Surgical Shock 1897

[2] J H Chaldecott and C W G Bryan The Value of Anoci Association THE LANCET Sept 6 1913 p 721

The great advantages are more particularly seen in serious operations upon elderly or feeble subjects and where an operation has to be performed upon an individual who is especially liable to have post-operative vomiting. In any case, the advantages from the patient's point of view are not inconsiderable, and seem to me to be well worth the additional trouble involved in the operative technique. The absence of post-operative vomiting is a very great advantage, as it is impossible to estimate the amount of damage which may often result in abdominal cases from the straining which necessarily accompanies vomiting. Surgeons have become so used to post-anæsthetic vomiting as a necessary evil after operations that they do not worry about it, but they will all agree that it is a most undesirable complication after an abdominal operation. It tends to start hæmorrhage afresh, it makes the stitches cut into the skin, it causes severe pain in the wound, it prevents sleep, it stops digestion, and, in fact, it would be hard to find any other complication which could cause as much damage to the surgeon's handiwork as vomiting. Complete rest for the abdominal cavity is what every surgeon desires for some hours after he has performed a laparotomy, but this is exactly the opposite of what occurs if there is vomiting. Allowing the patient to walk about immediately after an abdominal section would be considered little less than criminal, and yet it could not possibly do as much damage as vomiting.

The following cases are quoted as showing the advantages of this method in special cases.

CASE 1.—A fragile woman, aged 71, was sent to me by her medical attendant on account of a large tumour in the left side of the abdomen which was causing her acute pain. This pain was not relieved effectually by drugs, and she was very anxious to have something done. The tumour, which proved to be a chronic tubercular kidney, occupied the whole of the left side of the abdomen, and after removal was found to weigh nearly 7 lb. The operation was performed by the shockless method, 1/8 gr. of morphia being given before the operation, and continuous gas and oxygen used with local and regional anæsthesia. The operation of removing the kidney occupied 50 minutes, for as it was very much fixed by adhesions its removal was quite a difficult matter. Three minutes after cessation of the anæsthetic the patient was quite conscious. She was not sick at all, she had no after pain, and she was able to have her ordinary tea at 4.30 in the afternoon. Her pulse-rate never altered at all as the result of the operation, and she appeared to suffer no inconvenience in consequence of the operation.

CASE 2.—I first saw the patient, a woman aged 75, with her family physician on account of a large carcinomatous growth situated at the junction of the rectum and sigmoid. She was exceedingly anxious to have this removed if there was any chance of a successful result. A preliminary colotomy was performed, and ten days later the operation was carried out in the same way as in the previous case. The entire rectum, anus, and surrounding skin were removed together with some inches of the sigmoid flexure. The peritoneal cavity was extensively opened up, and 8 inches of bowel were removed. The operation took 1 hour 50 minutes. The patient was conscious in less than five minutes after being back in bed, and her pulse-rate was only 84. She never caused the slightest anxiety or showed any signs of distress as the result of the operation. She was not sick and did not lose her appetite. She was able to return home in less than a month after the operation.

CASE 3.—A hospital patient, aged 62, was admitted to St. Mark's Hospital with a large growth at the upper end of the rectum involving the posterior vaginal wall. She was a very fat and flabby subject, and appeared to be a very unsuitable individual for a serious operation. She was operated upon by the same method, the operation taking nearly two hours. She left the operating table with a pulse of 80, was not sick, showed no signs of shock, and caused no anxiety. She was out of bed three weeks after the operation.

CASE 4.—An army officer, aged 52, was sent back to England from a military hospital suffering from carcinoma of the upper part of the rectum and having just recovered from a serious attack of dysentery. He appeared to be in the end-stage, rather a bad risk for an operation. The operation was performed by the shockless method and took about two hours. The pulse-rate was not at all increased, the patient was conscious a few minutes after the operation, and two hours later was propped up in bed reading the newspaper. It was difficult in fact to believe that he had undergone a serious operation.

CASE 5.—The patient, a woman aged 75, was operated upon for chronic intestinal obstruction. The operation took 1 hour 15 minutes, and was performed under gas and oxygen anæsthesia. A thorough search of the abdominal cavity was necessary to find the obstruction, which proved to be a band of adhesions (there was considerable distension of all the intestines). The uterus and bladder were stitched up to the anterior abdominal wall to rectify a prolapse. The pulse-rate never went over 84. The patient was not sick, and she recovered without causing a moment's anxiety.

It is my belief that these patients could not have been operated upon successfully in the ordinary way, or at any rate that the risk would have been so great that one would have hesitated to attempt the operation. By the shockless method, however, they were not only able to get through the operation satisfactorily, but they never caused the slightest anxiety, and there was nothing in their general condition a few hours after the operation to indicate that they had undergone an operation. All of them were not only hungry but able to digest their food within 24 hours of the operation.

It must not be supposed that the shockless operation is just a new method which can easily be adopted. It is not so much a method as a series of principles by the careful coördination and coöperation of which the desired result can alone be obtained. The surgeon who wishes to achieve success with the shockless operation must have much patience and take a great deal of trouble to acquire the necessary technique, and he must have an anæsthetist an assistant, and nurses who understand and are capable of applying the necessary principles.

The credit for the discovery of the shockless operation is due almost entirely to Dr. Crile. Although for more than 12 years I have been working in the same experimental and clinical field, I have not had his opportunities, as in this country every difficulty is placed in the way of experimental work instead of its being encouraged as it is in America. In my Hunterian lecture on the Physiology and Treatment of Surgical Shock,[3] published in 1905, I predicted the coming of the truly shockless operation, and Dr. Crile's investigations have now rendered this an actual fact. From 1905 to about 1908 Mr. W. L. Symes and I carried out a number of experiments[4] at the University of London, the object of which was to ascertain what were the important factors in abdominal operations tending to produce shock and how they might best be combated or avoided. Briefly, we proved that there was a great difference in the shock producing effects of different kinds of wounds. Whereas wounds made with sharp instruments and accompanied by gentle manipulation, even if extensive, produced very little shock, the exact reverse was found to be the case with wounds produced by blunt dissection and accompanied by rough handling of the tissues. Further, we found that preliminary injection of morphia tended markedly to prevent shock. Our conclusions were never published. Fortunately similar but much better and more exhaustive experiments on the same lines have been performed by Dr. Crile in America, and his results have been published. It is satisfactory to note that his conclusions are the same as those at which we have arrived, although he has carried his proofs much further than we were able to do. Another result of our experiments was the discovery of the value of extract of the infundibular portion of the pituitary gland in combating shock. Since then this extract has been to some extent standardised, and is one of the most valuable drugs we possess for its effect upon the unstriped muscle-fibre.

My chief excuse for this paper is that the shockless operation does not seem to have received the attention from English surgeons that it deserves. Very few surgeons in this country appear to be using the method at present. Sir Berkeley Moynihan[5] advocates it as a routine method, but still apparently uses ether as the main general anæsthetic. Colonel H. M. W. Gray has also adopted this method, and has advocated it in a recent paper.[6] The present war has interfered very seriously with all advances in surgery which have not a direct bearing upon the treatment of the wounded, and a somewhat elaborate technique, such as is here involved, is doubtless very difficult of application on the field. This is to be regretted as the condition of seriously wounded men requiring immediate operation is one particularly predisposing to shock.

Hyde Park Place, W.

[3] Lockhart-Mummery: The Physiology and Treatment of Surgical Shock and Collapse, THE LANCET, vol. i., 1905, pp. 89[illegible] to 8[illegible].

[4] Lockhart-Mummery and Symes: Some Points in the Experimental Production and Control of the Vascular Array of Surgical Shock, Brit. Med. Journ., Sept. 19th, 1908.

[5] Moynihan: Abdominal Operations, p. 151.

[6] Gray: General Treatment of Infected Gunshot Wounds, Brit. Med. Journ., Jan. 1st, 1916.

INTESTINAL TOXINS AND THE CIRCULATION

BY D T BARRY, F R C S ENG, M D R U I
PROFESSOR OF PHYSIOLOGY, QUEEN'S COLLEGE, CORK

FOLLOWING up the investigation of the action of excretory toxins on the neuro-muscular mechanism of the heart, I have tried to ascertain approximately the level at which the alimentary toxin begins to be formed

As in the previous experiments, the toad's heart was perfused through the inferior vena cava, using the intestinal contents, which were mixed with Ringer's solution in a mortar, and the solution rapidly filtered with the aid of a water pump Too much filtration with long exposure to the air diminishes rapidly the toxicity of the extract Dogs and cats which were used for class demonstrations provided the material An attempt was made to remove the toxin by dialysis in a collodion dialyser as recommended by Bigelow,[1] but the dialysate was almost inactive Most of the cats received in this laboratory suffer from nematode worms, and in these cases, if we get over the difficulty of finding a sufficient quantity of material—the small intestine is almost empty—the toxic effect is slight The worms, *plus* the contents got by gentle scraping of the gut in these cases, were pounded in a mortar with Ringer's solution

The effects on the blood pressure and heart beat of intra venous injection of the intestinal contents of the animals themselves were also investigated A glass tube was tied into the external jugular vein and about 5 c c of the extract allowed to run into the circulation, after previous warming to a temperature of 37° C Prolonged warming even at low temperatures, diminishes the toxic action

It is well known that the mucous membrane of the intestine contains depressor substances, extracts made in the preparation of secretin, for instance, showing their presence Light superficial scraping, however, does not extract them In the present experiments where the contents were abundant no scraping was necessary, but it was employed very lightly when the contents were sparsely found Injections of light scrapings have been practised in the investigation of hormones affecting the secretion of intestinal juice, but without marked blood pressure changes

Method

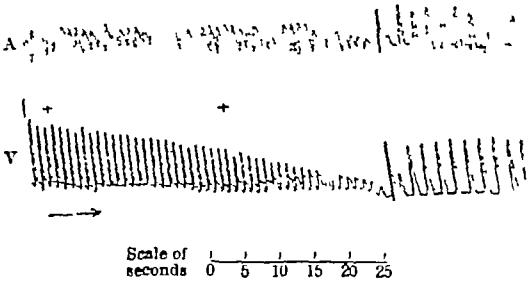
The method employed was to subdivide the small intestine into upper middle, and lower thirds, of which the contents were mixed with Ringer's solution 5 gm in 50 c.c, filtered and neutralised In the text these extracts are numbered 1 2, and 3 respectively from above down The contents of the cæcum were also used and this mixture is numbered 4 In each case the animal is specified "2 cat," for instance meaning the contents of the middle third of the cat's intestine

All the extracts were acid to phenolphthalein and were made neutral by the addition of standard alkali and certain indicators With these indicators it was estimated, according to the table given by Bayliss,[2] that the H concentration was between $1 \times 10^{-}$ and 1×10^{-8} in all extracts used With phenolphthalein the hydrogen ion concentration is 1×10^{-9} when the colourless solution just changes to pink. A definite pink colour was allowed to develop in the extracts with this indicator by dropping in the alkali and this was then just dispersed by careful addition of further extract The solution then gives a faint orange tint with neutral red, and pure red with Congo red

The glass cannula used in the former experiments was discarded in the present series for a junctional piece consisting of vulcanite This is of crucial form the bore being one millimetre throughout It was made for me by Messrs Hawksley and Sons One limb of the junctional piece is attached by rubber tubing to a small glass cannula of which the bore does not exceed one millimetre The other three limbs are connected with perfusion bottles This arrangement facilitates washing out and changing of the fluid in one or more bottles without removing the cannula from the vein The dead space in the combination is almost negligible The rate of flow was regulated in the manner described in a previous paper[3] One perfusion bottle always contains Ringer's solution and the other two the material to be examined for toxic effects The aortæ were cut across to give free exit to the fluid All the records read from left to right Tracings of the auricle (upper) and ventricle (lower) are given Most of the extracts show a toxic action on the muscle or nerves an effect which is slight in the upper portions of the gut and increases as we proceed downwards Speaking generally, the varying effects can be interpreted in terms of degree or intensity of action The most marked action is on the ventricle or on the auriculo-ventricular bundle

A simple and uniform loss of power in the contractions without change of rhythm (Fig 1) is sometimes seen but i

FIG 1

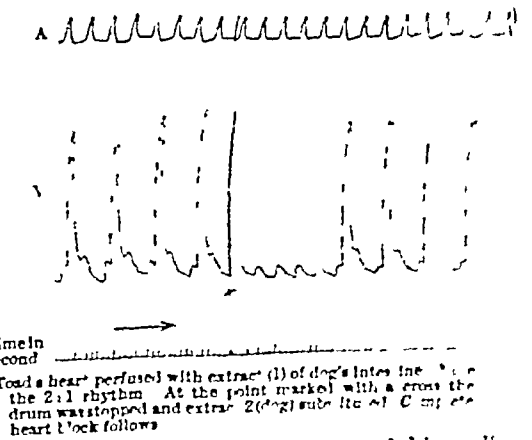


Record of auricular (A) and ventricular (V) contractions of a toad's heart perfused with extract (1) of cat's intestine for the period between the crosses At the thick line the drum was stopped and Ringer's solution perfused The record reads from left to right.

is not usual, irregularity of the ventricular beat being one of the most common and prominent features In the first tracing, 1 (cat), it will be seen that the ventricle fades off in force some time before the auricle is affected and the rhythm is maintained At the thick line the drum was stopped for a few minutes, during which perfusion with Ringer's solution was carried out This fully restored the beat, but the rate on recovery was somewhat slower than previously The accelerator fibres to the heart undergo depression in these cases, as is shown by a stimulus applied to the crescent which before perfusion gives initial acceleration, but subsequently to perfusion gives none There is no increased tone, rather the reverse, and the action has to be described as an enfeebling one, especially on the ventricle with no appearance of block Further perfusion with the same extract gave similar results A general consistency of action has been noticed for a particular extract allowing for the fact that the toxicity tends to disappear with time

A more common result from No 1 toxin is a change of rhythm (Fig 2) In the first part of this tracing, 1 (dog)

FIG 2



Toad's heart perfused with extract (1) of dog's intestine [illegible] the 2:1 rhythm At the point marked with a cross the drum was stopped and extract 2 (dog) substituted C [illegible] heart block follows

only every other beat of the auricles succeeded in setting over an effective stimulus to the ventricles—that is a 2 to 1 rhythm At the point marked with a cross the drum was stopped for about half a minute during which perfusion

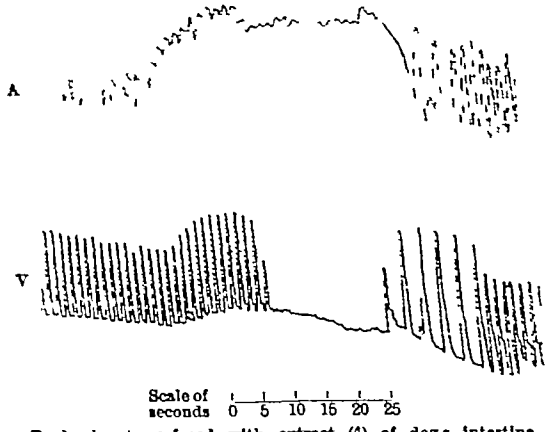
[1] Bigelow and Gemberling Jour Amer Chem Soc 1907 p 1576
[2] Principles of General Physiology 1915 p 189
[3] THE LANCET May 22nd, 1915 p 1170

with No 2 from the same source (dog) was carried out The effect of this is seen in complete block of four auricular stimuli. The last few beats of the ventricle before the drum resumed its movement were very feeble On recovery the previous 2 to 1 rhythm is shown This is a true example of block and must be due to lowered conductivity of the a v muscle

No 3 extract from this source first caused change of normal rhythm to 2 to 1. On continued perfusion for a few minutes it caused tone changes and tremor of the ventricle with slowing of the auricle (ventricle rate) It is only after somewhat prolonged action that the auricular muscle (or nervés) shows any marked effects Perfusion with Ringer's solution for about one minute (drum stopped) gradually restored the beat, but for some time it remained at 2 to 1

The effects of No 4 (dog) mixture were somewhat more pronounced. (Fig 3) There is marked increase of tone in the auricles, slight increase in ventricle tone at first, and subsequently block. The arrest is purely ventricular, the auricular contractions, though small in the record, being distinct. The perfusion was stopped when the ventricle was arrested The quiescent ventricle, of course, tended to keep

FIG 3



Toad's heart perfused with extract (4) of dog's intestine. Perfusion was stopped when the ventricle was arrested

the auricular pressure up but the increased tone is mostly independent of mechanical pressure effects, although it is relaxed by the relief of pressure with the first few beats restored in the ventricle Slight changes in perfusion pressure, even if they occurred, could not of themselves cause these effects

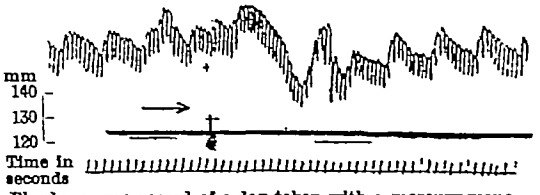
No 4 (cat), a weak solution, gave in one case increased auricular tone with irregularity which in the ventricle partakes of the character of extra systoles without compensatory pause There is no block An increase in calcium ions in the perfusing fluid would cause increased tone changes in the muscle Calcium, mostly in insoluble form is excreted by the large intestine It cannot affect the results to any appreciable extent

Where the ventricle is arrested as described its irritability and contractility are lost only for a brief period Except in the early phase of quiescence it responds by contraction to an electrical stimulus This contraction is single, or the stimulus if applied late in the quiescent phase may cause a regular sequence of beats thus anticipating by a few seconds the spontaneous resumption of the rhythmic contractions More time is necessary for the recovery of conductivity than for the other properties The oneness of these properties as maintained by Hering [4] Muskens [5] &c is difficult to credit Engelmann's [6] view of their independence of one another because ministered to by independent nerve units (bathmo- ino- chrono- and dromotropic filaments) fits in more accurately with common observation, especially of the action of toxic substances

Intravenous injection —The animals employed for testing the effects of injection into the circulation were used subsequently for ordinary demonstrations Complete anæsthesia had to be induced, and a fast of some 12 hours or more preceded the operations, consequently the amount of material to hand in the upper portions of the gut was small, yielding no more than 5 c c of a 10 per cent extract This was the quantity used throughout

The records given are from the dog The blood pressure was recorded by a mercury manometer, either alone (Fig 4) or in conjunction with a Hürthle tambour (Fig 5) The advantage of using a Hürthle or some form of sphygmoscope is that it facilitates counting the heart beats, the mercury manometer being unreliable for this The upper tracing is that of the mercury manometer A cannula was inserted into the left common carotid artery and made to communicate through a Y shaped piece with the manometer and

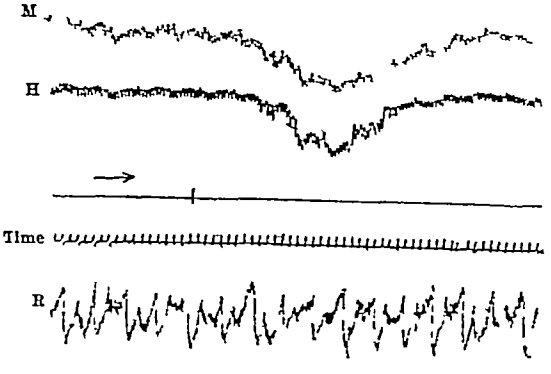
FIG 4



Blood pressure record of a dog taken with a mercury manometer At the mark on the horizontal line an intravenous injection of its own extract (2) was given

Hürthle tambour The pressure was first raised in these after expelling air to about 150 mm Hg The breathing is recorded by tambours in Fig 5 It will be seen that the principal change is a fall in blood pressure, which is slight from the material of the upper and middle reaches of the gut (Fig 4) The drop in B P in this latter case was given by No 2 The point of injection is marked on the horizontal line, the time record gives seconds There is very little change in the rate and force of the heart beat Fig 5 shows the effect of No 3 extract injected into the vein, the vagi being cut With intact vagi there is a fall of pressure soon after the injection at the end of which there is some increase of heart rate and gradual recovery With vagi cut (Fig 5) there is also a fall of pressure which is, however, more rapidly recovered from In this record irregularity of the heart-beat is pretty well shown, and this factor apparently plays a part in the pressure change

FIG 5



Blood pressure record of vagotomised dog with mercury (M) and Hürthle (H) manometer The respiration (R) is also recorded At the mark extract (3) was injected intravenously

There seems little doubt that substances having a deleterious action on the heart musculature and nerves are formed both in the small and large intestine, even under apparently normal circumstances It is quite conceivable that such products whether of bacterial or ferment action, may on occasion exist in excessive quantity and find access by absorption to the circulation, or that certain conditions might determine undue absorption when they exist in ordinary amounts It is well known that certain products—indol skatol, &c.—in themselves toxic, are made harmless by oxidation, absorbed and excreted as sulphates I have remarked in the experiments that undue exposure overmuch filtering or delay tends to diminish the action of the intestinal toxins, thus suggesting their volatile nature

Peptone has a depressing effect on the blood pressure but practically no peptone is shown to exist in those regions of

[4] Arch f d ges Phys Band lxxxvi p. 533
[5] Amer Jour of Phys vol i 1898.
[6] Arch f Phys 1900 p 315

the gut where the toxicity is most marked If we acidify and boil the contents of the lower end of the ileum, filter, and add alcohol or tannic acid to the filtrate, it gives no appreciable precipitate

The results of perfusion of the toad's heart give us a much more reliable indication than those of intravenous injection in the mammal. In the latter the quantity injected is small and the time of action short It is reasonable to assume that prolonged absorption even in minute quantities would produce effects on the mammalian heart similar to those immediately produced in the toad's heart by comparatively strong concentration The excised mammalian heart may prove suitable for perfusion with more concentrated solutions, but the difficulties of technique would not be light

Many conditions of irregularity and block observed in the human heart in Stokes-Adams and other affections seem to fall into line with the action of these substances Osler[7] says that poisons arising in the intestine may cause arrhythmia Flatulence, he says, may cause it reflexly A neurotic group of cases is described where no post-mortem lesions are found In the matter of treatment the same author makes brief reference to dieting and the importance of avoiding full meals and flatulency

A systematic course of treatment of the alimentary canal antiseptically and otherwise should be of the greatest service in some of these cases Theoretically there are substantial grounds for the adoption of such a course, the arranging of the practical details of which is, however, in the province of the observant practitioner

Cork

KALA-AZAR IN SOLDIERS RETURNING FROM MALTA

BY GORDON R WARD, M D LOND,
CAPTAIN R.A M C (S R.)

THIS preliminary note is based on two cases which have come under my notice during the last 12 months, and is written with the hope of drawing early attention to the following facts —

1 That cases of kala azar are to be expected among men returning from Malta and who have never been farther East than that point

2 That the diagnosis is likely to be very difficult to those unacquainted with tropical diseases

3 That the prognosis must not necessarily be regarded as hopeless

These facts may be well known to those who have had the opportunity of studying tropical medicine but they deal with a field of study necessarily almost unknown to the average general practitioner, yet it is the general practitioner who is now treating the majority of the returned troops, and there can be little doubt that he will have to practise, after the war, amongst diseases which have hitherto been merely names to him It is hoped that the writer's experience may be of some assistance to others

Owing to certain anomalies in the first case and to the fact that the second case is now under treatment no attempt can be made at present to give a full description The diagnosis and treatment are of first importance, but these must be prefaced by a few more general remarks

Kala azar (the black fever ") is well known in India and until the causal parasite—the Leishmania donovani—was discovered by the R A M C officers whose name it bears was commonly supposed to be a manifestation of malaria This fate of course has been that of most varieties of splenomegaly in the tropics and even at one time at home Beyond India it has been recognised particularly in the Mediterranean but here it was chiefly met with in children and this peculiarity has led some people to suppose that the Mediterranean form is a different disease However this may be the course of the disease when it attacks adults seems to be the same as that of the Indian form

The first symptom is either referable to general enfeeblement or to the splenomegaly and may be weakness dyspnœa indigestion and dragging pain Diarrhœa is a common symptom and well marked pyrexia is characteristic The wasting increases the skin becomes pigmented the splenomegaly assumes greater prominence and the patient dies from exhaustion or from some intercurrent infective process The duration of the disease may be anything from a few months to some years

The diagnostic problem is somewhat as follows A patient presents himself with diarrhœa continuing weakness, or some similar sign which would fit many disease processes If no thorough examination is made and symptomatic treatment adopted there will be at the best brief subjective improvement Eventually examination must be made and will disclose a large—probably a very large—spleen This will naturally elicit a question as to whether the patient has been abroad and, this being answered in the affirmative the diagnosis of some tropical disease is suggested This is the stage at which my first patient arrived. He was sent for examination by his commanding officer with the remark that "he had not seemed fit for duty for two or three months, he had refused to report sick " He was noted to be very anæmic and was admitted to hospital, where the splenomegaly was quickly discovered The medical officer in charge, who held the Diploma in Tropical Medicine, brought it to my notice with the remark that it was a case of leukæmia On examination marked general pigmentation was noted This is against a diagnosis of leukæmia, in which general pigmentation is quite uncommon A blood examination was made forthwith and revealed a very low leucocyte count This excluded leukæmia and suggested kala azar It did not, however, rule out splenic anæmia. A spleen puncture, however afforded abundant evidence of the nature of the disease very many typical parasites being seen

It is obvious that the conveniences of blood examination and spleen puncture may not always be available, and it is therefore pertinent to inquire how far a definite diagnosis can be arrived at without them Absolute diagnosis is not possible unless the parasite be found, but the following points in a case of massive splenomegaly are most in favour of kala azar—viz , residence abroad, general pigmentation absence of enlarged glands, deafness and failing sight (all of which may be found in leukæmia) and the temperature The latter is peculiar in showing two daily rises, and a four hourly chart is necessary to show this The first maximum is reached about noon, the second in the evening

My second case was admitted to hospital after three or four months of increasing debility He complained mostly of diarrhœa When only a few days temperature readings were available they closely resembled a somewhat typical enteric defervescence The diarrhœa and splenomegaly were held to be consistent with such a diagnosis although the extent of the latter was felt to be unusual and disquieting Major A Elliot of the 1st London Field Ambulance has kindly given me details of another case (also contracted in Malta) in which the same diagnosis was arrived at It is therefore very important to remember that the splenomegaly of enteric is not nearly so marked as in kala-azar and is not solid to the feel A hard, massive spleen extending to the umbilicus or to the pubis can never be ascribed to typhoid, nor indeed is it likely to be associated with anything like so acute a process as any of the enteric group In the second case spleen puncture was performed to place the diagnosis beyond doubt although reasonably definite parasites were found in the circulating blood

One other point may be mentioned in diagnosis The idea that kala azar was malarial amongst other factors gave rise to a very firmly rooted conviction that malaria could produce extreme chronic splenomegaly Whether this is now held to be the case the writer does not know but it is significant that Castellani and Chalmers in their 'Manual of Tropical Medicine,' give 'marked enlargement of the spleen' as a diagnostic point in favour of kala azar as against malaria. No other authority is immediately available for reference

As regards prognosis the same writers are distinctly pessimistic stating that 70 per cent die with vigorous quinine treatment and 93 per cent without this The first case mentioned recovered after taking from 60 to 70 grains of quinine daily by the mouth for three months He has been on full duty for five months since The second case is now taking 60 grains daily (reached by increments of 6 to 9 grains a day) and there is some slight diminution of the spleen but his general condition is not improved He has not been long under observation[1] Major F who informs me that the case he saw did not have any large doses of quinine and died eventually of carcinomatosis In any case it is

[7] Text book of Medicine 1912, p 774

[1] This patient has since died

obvious that quinine ought to be pushed as much as possible In neither of my cases did large doses give rise to manifestations of quinine poisoning sufficient to annoy the patient, but when this is the case bromides are said to mitigate the symptoms

More recently Sir Leonard Rogers and others have used intravenous injections of 2 per cent tartar emetic in saline, and claim to have better results than by the older methods The details of technique can be found in sundry papers published in the medical journals during the last year or two

In conclusion, it may be stated that this note will have achieved its object if the general practitioner, to whom it is addressed, will think of the possibility of kala azar in the presence of splenomegaly in a soldier returned from abroad. There can be no doubt that the greatest difficulty in diagnosis is the realisation of what the disease may possibly be Once kala azar is considered as a possibility the diagnosis presents no particular difficulty

Sevenoaks, Kent

ABDOMINO-PERINEAL RESECTION OF RECTUM BY COFFEY'S MODIFICATION OF THE TWO-STAGE OPERATION

BY LAURENCE C PANTING, M D, B CH OXON, M R C P LOND, F R.C S ENG,
SURGEON TO THE ROYAL CORNWALL INFIRMARY TRURO

THE radical operation for cancer of the rectum as elaborated by Ernest Miles[1] must necessarily be a most serious surgical procedure for even in his very skilled hands it takes from an hour and a half to two hours to perform and the mortality reaches 22 per cent, other surgeons admitting a much higher figure Apart from the grave injury necessarily inflicted on the tissues the mere duration of anæsthesia for such a prolonged period is serious and this danger is enhanced by the change in position of the patient required for the performance of the perineal portion of the operation It is not surprising, therefore, that various plans have been suggested for dividing the operation so that it may be performed in two stages, the abdominal portion constituting the first and the perineal the second stage

W Mayo[2] expresses the opinion that by operating in two stages the mortality may be reduced to one-half of that occurring when it is performed in one He suggests two plans for the division the first to perform a colostomy without division of the bowel followed by Kraske s sacral operation or some modification of it This has the advantage that it can be employed in cases of obstruction and allows of cleansing the lower and diseased segment but beyond the fact that it permits exploration for metastases it has none of the advantages of the accepted abdomino perineal operation but is really a modification of Kraske s operation The second method of which several modifications may here be considered is that usually adopted It consists of a first stage at which the pelvic colon is divided and the ends closed, the lower end of the upper segment being brought through the abdominal wall as a permanent colostomy, while the lower segment is freed from its attachments and left to be removed by a perineal operation as a second stage

In the treatment of the separated lower segment with its attached mesentery and glands several plans have been proposed Mayo leaving the lateral attachments of the rectum in the pelvis intact in order to preserve the middle hæmorrhoidal arteries pushes the whole mass into the lower part of the pelvis and closes the peritoneum over it leaving it thus until it is removed in the second stage (perineal) operation six or seven days later In one case of Mayo s and in several elsewhere recorded the blood supply has proved insufficient and perforation of the bowel has led to a fatal result Another method which he has tried is to divide the bowel with the cautery between clamps the lower clamp being left in the wound surrounded by a thin rubber tube packed with gauze Alternatively the bowel may be divided between ligatures[3] the end inverted with a purse-string suture and the peritoneum sewn over it to protect the peritoneal cavity The danger of sepsis in thus dividing the gut low down in the pelvis in the presence of a sloughing growth is obvious and seems to constitute a very serious disadvantage to the plan As a further alternative it has been suggested by Coffey[4] that the lower segment should be inverted through the anus, which prevents any danger of sepsis to the peritoneal cavity since the bowel is not opened The peritoneal surfaces which are in contact rapidly close the upper end so that when necrosis from loss of blood supply occurs, there is no longer any avenue open to the pelvic cavity With these advantages it has, of course, certain limitations, thus, in the case of a large mass of growth it may be technically impossible to perform the inversion and get it through the anus Another difficulty occurs where the growth actually involves the region of the anterior reflexion of the peritoneum from the rectum, but this, if sufficiently extended, must render any two-stage operation upon these lines nugatory and that to a greater extent in the other modifications than in this

As some plan of invagination had for some time seemed to me more hopeful than anything previously described I at once adopted Coffey's method in the following case which came under my care, and it proved entirely satisfactory

Mrs ——, aged 49 years, was sent to me in October, 1915, with a view to operation for cancer of the rectum She had been suffering for two years from symptoms due chiefly to a polypus which came down every time the bowels acted and bled fairly freely until it was replaced in the rectum There was also an offensive discharge, but no obstruction and no pain which did not seem easily accounted for by the polypus She had not appreciably lost flesh, and when seen she was well nourished and not more out of health than might be expected from the constant irritation and discharge On examination a polypus of about the size of a plum was found attached by a thin pedicle to the anterior wall of the rectum just inside the anus Some two inches above the anus a soft granular growth was felt, apparently encircling the bowel and reaching upwards as far as the finger could reach The lower part was but little raised, while the upper part protruded into the lumen of the bowel Nowhere could any fixation of the rectum be made out, the vagina was normal and the uterus freely movable The liver was not enlarged, and nowhere could any glandular or metastatic deposit be felt

As the case seemed suitable for operation the patient went to a nursing home, and on the night of her arrival the polypus came down and the opportunity was taken to remove it so that the rectum could be better cleared The first operation was performed two days later An incision was made from the umbilicus to the pubes in the middle line, and a preliminary examination made which showed the absence of recognisable metastasis The pelvic colon was drawn out of the wound and a point selected in its lower part so that as much as possible might remain to form a reservoir for fæces At this point the bowel was crushed and divided with the cautery between ligatures, the divided end being turned in and closed with a purse string suture The mesentery was then divided back to the promontory of the sacrum and the superior hæmorrhoidal artery ligatured The peritoneum was divided on either side of the rectum down to the base of the broad ligament and the whole mass of rectum with the soft tissues and glands separated from the sacrum as far as the upper end of the coccyx The anterior reflexion of peritoneum from the rectum was divided, and finally the lateral attachments of the rectum The portion of gut below the section with its adherent cellular tissue and glands had thus been entirely freed down to a point a little below the anterior reflexion of the peritoneum A large rubber tube had been prepared shaped, and stitched so as to form a blunt point at one end and open at the other, and to act as a pilot for this a corresponding glass tube closed and rounded at one end This tube with its pilot in position was now passed by an assistant through the anus and up the rectum, the end of the tube being guided by the operator's hand in the pelvis When it was well in the rectum the glass tube was withdrawn and the rubber tube pushed on until it reached the closed end of the bowel Here it was firmly fixed by stitches passing right through the gut and rubber from side to side The tube was then slowly withdrawn, invaginating the upper end of the bowel into itself the walls being meanwhile supported by forceps on each side This was continued until the whole of the free portion had been invaginated The cut edges of the peritoneum in the pelvis were drawn together with stitches and in order to form a second peritoneal layer the uterus was drawn back and stitched to the peritoneum over the sacrum and laterally the peritoneal floor being thus firmly closed The lower end of the upper segment was then

[1] E Miles: British Journal of Surgery October 1913 (full description of his operation)
[2] W Mayo: Annals of Surgery August 1912.
[3] E Deanesly: Brit Med Jour vol 1 1910 p 1145
[4] R. Coffey Annals of Surgery April, 1915

passed through the left rectus by means of a separate incision and fixed to form a permanent colostomy, and finally the main wound sewn up

The operation lasted one and a half hours, but the patient bore it extremely well, the pulse not exceeding 100 Next day, however, there was a good deal of discomfort from distension, which necessitated the opening of the colostomy in 48 hours after the operation After this her recovery was rapid, there was no trouble from the necrosed bowel, which separated off on the sixth day, the temperature did not exceed 100 2° F, and in 14 days she appeared quite fit for the second operation, the wound being quite healed and the colostomy acting well

At the second operation, with the patient in the extreme lithotomy position, a lozenge shaped incision was made round the anus and carried backwards to the sacrum The coccyx was removed, the sacro-rectal space opened, and the dissection carried upwards until the closed upper end of the rectum was reached Unfortunately the peritoneal adhesions at the invagination gave way during this manipulation, and septic material from the interior of the rectum escaped into the wound This was sponged away and the opening closed as well as possible with a gauze pad while the lateral and anterior connexions of the rectum were separated This was accomplished without much difficulty and the rectum and anus removed There was some oozing from the deep part of the wound which caused delay When this had been stopped the edges were sewn together and a large tube left in the sacral end of the wound

There was a good deal of shock from this operation which lasted one hour, the pulse rising to 132, due in part, no doubt, to the oozing above mentioned, but chiefly, it seemed, to the anæsthetic, which on this occasion the patient took very badly The shock, however, soon passed off, the pulse falling to 112 in a few hours, and after this she made a perfectly satisfactory and uneventful recovery The wound, though necessarily septic owing to the escape of the contents of the rectum, gave no trouble, and almost the whole of the anterior part had united when the stitches were removed on the seventh day The posterior portion where the tube had been healed more slowly and was not closed until six weeks after the second operation, when the patient returned home The colostomy was then acting once a day, and required nothing more than a simple pad The latest information is that she is doing extremely well

The portion of the bowel removed showed a soft carcinomatous growth about 4 inches long, commencing 2½ inches from the anus, and nearly encircling the rectum The upper limit of the growth was about ¾ inch below the level at which the invaginated portion had separated off

From the satisfactory result obtained in this case it seems reasonable to conclude that Coffey's suggestion is of distinct value and likely to prove useful in suitable cases

Truro

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL

ASPHYXIA FROM DEFECTIVE SHIP BOARD VENTILATION

BY GILBERT E BROOKE, L R C P & S EDIN, D.P H.
PORT HEALTH OFFICER, SINGAPORE.

FATAL accidents take place from time to time on board ship as a result of faulty or imperfect ventilation Generally speaking, these accidents are the result of poisonous and explosive gases from consignments of cargo as for instance ferro-silicon, which when acted on by moisture evolves phosphoretted hydrogen often accompanied by arseniuretted hydrogen A number of examples of shipping fatalities from this cause will be found in a special report on the subject issued by the Local Government Board in 1909 (Cd. 4958) Occasionally however in the absence of proper ventilation, changes in the normal oxygen and carbon dioxide air content, brought about in various ways, may result in serious mishaps As far as my experience goes these changes are of two types A condition may arise in which some of the oxygen in a compartment is used up, while the normal CO_2 content is unchanged, while on the other hand the amount of CO_2 may be much increased at the expense of the existing oxygen

The first of these two types is, of course, the least dangerous The following is a good example of it —

An empty oil tank ship arrived in Singapore Her aft cofferdam had been filled with Suez water, most of which had been used, and the compartment had been battened down for about a month When the compartment was first opened several men who attempted to enter became unconscious After being rescued and removed to the fresh air they all recovered without further mishap An analysis of air in the compartment showed that there was no petroleum vapour and that the CO_2 was normal The oxygen, however, had fallen to 15 4 per cent The result was therefore merely an oxygen starvation, which, if not too long continued, could be easily recovered from The only reasonable cause which could be discovered for the condition was a process of rapid oxidation of the bulkhead ironwork (in the presence of closure, heat, and moisture), leading to a large abstraction of oxygen without other chemical action

With regard to the second type mentioned above, two cases have come to my notice both of which were attended with fatal results

A ship named the *Merapi* arrived from China on April 25th 1908 When her lower holds were opened up for the removal of cargo two of the ship's crew who attempted to enter the hold fell down insensible They were removed after a little time, but artificial respiration was tried without success On analysis the air of the hold showed oxygen 8 6 per cent and CO_2 11 8 per cent I was on leave at the time and could, unfortunately, get no particulars as to the ventilation of the compartment nor the composition of the cargo

The second case was a still more remarkable one A Dutch steamer, the s s *Jacob*, arrived in Singapore on Dec 22nd, 1915, with general cargo from Amoy and Swatow and 1826 'tween deck coolie passengers The passengers were all healthy on arrival and were given pratique at the quarantine anchorage The ship then proceeded to the inner roads to discharge her cargo This cargo had been battened down in the lower holds for six days of a tropical voyage On opening one of the for'ard holds (No 2) two of the Chinese crew descended, but immediately fell insensible on the top of the cargo All attempts to bring them up were unsuccessful, until the hatch cover had been removed for some ten minutes The men were then apparently dead Artificial respiration was continued for some time, but without avail Spaces between cargo-bales enabled me to obtain a sample of air from near the limber boards, which, on subsequent analysis, disclosed the following remarkable figures Carbon dioxide, 22 55 per cent, oxygen 1 86 per cent, marsh gas, 0·30 per cent, nitrogen, 75 29 per cent When the hold had been properly aired after an hour or two I was able to go down and make a survey The air was hot, slightly aromatic but disagreeably acrid There had been originally two ventilators communicating with that hold The for'ard one traversed the 'tween-deck intact and ended as a six foot shaft above the main deck This shaft was fitted with a fixed mushroom top and could therefore at best only act as an uptake, but would have no action at all in the absence of other ventilating openings or intakes The second ventilator was situated aft, and, like the first, traversed the 'tween deck intact, but was then diverted in square section through some cabins and was supposed to open on the upper boat deck The opening, had however been permanently decked over seemingly for a long time There had therefore been a condition of air stasis for six or seven days in a hold three quarters full of cargo and at a temperature probably increased by wild heat to over 90° F

Under such circumstances the composition of the cargo was the important question A few sacks of soy beans sugar and cooked rice comprised the smaller portion There were also 277 baskets of garlic and over 1000 large wooden tubs of fresh oranges The rest of the space was occupied with bales of Chinese paper and baskets of fowls eggs The replacement of all the oxygen by carbon dioxide must have been brought about by respiration of the oranges and garlic in the absence of any ventilation, and the high temperature was probably a contributing factor of importance

Singapore

A CASE OF ADVANCED INTRA ABDOMINAL PREGNANCY

BY B RANDALL VICKERS M B B S LOND
IN CHARGE WE LEYAN MISSION HOSPITAL WUCHOW, KWANGSI CHINA

IN view of the rarity of abdominal pregnancy continuing to the later months, it is worth while recording the following case recently treated in Wuchow, Kwangsi Province China.

The patient a married woman aged 33, appeared at the clinic on Nov 23rd 1915 complaining of a lump in the abdomen

and giving the following history Fever and chills in the fourth moon, swelling of abdomen began a month ago, occasional pain in the abdomen bowels open daily with hard stools Menstrual history Had had two children, 20 and 19 years ago, no pregnancy since then The menses were regular until the third moon of this year (April–May), then nothing until the sixth moon (July), when the flow appeared twice. The same happened in the seventh moon, since when nothing up to date Premenstrual pain for about a year, no leucorrhœa

Abdominal examination—A visible tumour in the lower abdomen, roughly median in position Faint linea nigra present, also a number of cautery marks in the left iliac region, which part she said was the most painful The tumour came up from the pelvis, was irregular, movable, and very hard, manipulation causing more or less pain Percussion dull, splenic area resonant. The upper limit of the mass was about at the level of the umbilicus, and an "edge" was palpable to the left of this

Vaginal examination—Great hypertrophy of lips of cervix, which was very soft. There was a knob in Douglas's pouch, very hard, and connected with the abdominal lump The uterine sound passed from 4½ to 5 inches The main mass seemed to be behind the uterus which was deflected towards the right side

The patient was admitted to hospital on Nov 29th, 1915 After admission she had a good deal of pain in the tumour, and six days subsequently began to have a pale bloody discharge from the vagina (? menses) On Dec 7th she passed three fleshy "clots" one of which I saw, 1½ in square and ⅛ in thick, not unlike decidual membrane On Dec 8th this note was made "On examination of the abdomen this morning I noticed immediately that the mass was moving inside in a manner suggestive of vigorous fœtal movements These continued incessantly, and further examination showed that the irregularities of the tumour might well be fœtal small parts Careful auscultation revealed a fœtal heart beating at 168 per minute heard in the left iliac region immediately above and external to the innermost of the cautery marks Patient says the tumour has been moving for over a month and the movements are accompanied by pain" Dec 10th 'Upper part of tumour is to-day well above umbilicus, Cannot define it well because of the tenderness and cannot make out the placental mass"

On Dec 10th with the assistance of Dr Hayes, I operated Dr Leavell giving the chloroform An incision 5 in long was made in the middle line above and below the umbilicus As soon as the peritoneum was incised the intestines and omentum presented, and a certain quantity of yellowish fluid escaped The intestines had lost their gloss and were studded in parts with little nodules from a chronic peritonitis they were not matted together, though here and there flakes of lymph were seen While the bowel was being replaced a loop of umbilical cord extruded itself from the lower end of the wound On holding apart the abdominal wall the child was visible and was extracted without much difficulty the head causing a little delay as compared with other parts The position was dorso-anterior, with the feet in the right false pelvis and the head up in the direction of the spleen The child was not in any sac but the head was enclosed in a pouch which seemed to grasp its neck and caused a *moment's delay* in delivery though there was no definite membrane found The cord having been clipped and severed was traced into the placenta, which was found to be large and attached to the right side of the pelvis and the posterior surface of the uterus In view of the risk of serious hæmorrhage from the placental sinuses it was decided to remove the uterus and appendages *en masse* with the attached placenta As the uterus had also a myoma this proceeding was less undesirable than it might otherwise have been Supravaginal amputation was therefore performed with the removal of the right appendages and left tube the left ovary being left *in situ* Considerable hæmorrhage was encountered from the placental vessels as the tissues were more friable than is the case with normal intra uterine placenta As the patient had lost a good deal of blood and the general condition was dangerous no attempt was made to unite the opening in the posterior parietal peritoneum This was because the previous manipulations in this area had led to much bleeding and it was feared that the introduction of the needle for stitching might restart the trouble A tube and gauze drain were left down to the bare area and the anterior abdominal wall was closed The operation took exactly three hours and at its close the patient's pulse had recovered somewhat be ng fairly strong at 116 per minute The child was covered on its back shoulders and arms with lanugo being apparently about eight months old It was revived after delivery and lived a few hours Sex female On examination of the extirpated uterus &c it was found that the right tube could be traced for a distance of about one inch and was then lost on the placenta The placental attachments to the womb s posterior surface were of such a nature that they could have been broken down without severe hæmorrhage but previous to the removal it was impossible to know this The uterine cavity contained a ragged decidua, and in its anterior wall was an interstitial myoma of the size of a walnut The right ovary was enlarged It is noteworthy that this child was to all intents free in the peritoneum without any enclosing sac of amnion and not surrounded by any appreciable amount of fluid

Thirty six hours after operation the temperature rose to 103 2° F This was not surprising in view of the manipulations and the large bare area By proctoclysis and hypodermoclysis, however, the danger was averted, and the untoward symptoms gradually disappeared The subsequent progress was good but complete closure was delayed by the infection of some deep ligatures which necessitated continued drainage Ultimately the patient left the hospital completely well on Jan 27th, 1916 (It was interesting that on Dec 24th to 27th the breasts became enlarged and knotty, with secretion of a watery milk.)

Reconstructing the history of this morbid condition, it appears that the patient became pregnant about the third moon, the pregnancy occurring in the right tube Amenorrhœa followed, but by the sixth moon the sac had grown large enough to require more space, and ruptured the tube, this was accompanied by uterine hæmorrhage. The internal hæmorrhage was not very severe and though the sac itself was ruptured that part of the chorion which was destined to form the placenta was not damaged sufficiently to overcome its vitality The embryo continued to grow, the placenta forming around the site of rupture.

The fœtus was in the nature of a foreign body free in the peritoneal cavity and set up a chronic low peritonitis, as evidenced (1) pathologically, by the granular intestinal peritoneum and free peritonitic fluid, and (2) clinically by the tenderness on palpation and pain on fœtal movements (There is no reason to suppose that intraperitoneal fœtal movements, apart from inflammation, would of themselves cause pain, any more than the physiological movements of intestinal loops cause pain in normal individuals)

The irregular hæmorrhage in the sixth and seventh moons is thus accounted for The passage of decidua while in hospital may not unreasonably be attributed to the exploration by sound a few days previously In fact, it seems as if a 'labour" had supervened, but that the placental circulation had not immediately ceased, as is usually the case

The question which I have not been able to solve is Why should the fœtal movements have varied so greatly at different times? When I saw the patient in the dispensary and again in the hospital abdominal inspection and palpation aroused no suspicion, but on Dec 8th the moment the abdomen was uncovered one could not help seeing the furious 'kickings continually going on, and yet having seen and felt them, the next day in prolonged palpation I failed to detect any movement whatever, though the event proved that the child was not dead

Wuchow South China.

Medical Societies.

ROYAL SOCIETY OF MEDICINE

SECTION OF OBSTETRICS AND GYNÆCOLOGY

Exhibition of Case and Specimens—Hæmatoma of the Abdominal Wall—Abdominal Pregnancy—Acute Hepatic Toxæmia Complicating Pregnancy and Labour

A MEETING of this section was held on June 8th, Dr M HANDFIELD-JONES, the President, being in the chair

Mr JOHN D MALCOLM showed a case of Strangulation of the Uterus by Torsion of the Body on the Cervix. While rotation of the whole uterus with an ovarian or uterine tumour is not very uncommon, the displacement being at most something over half a revolution Mr Malcolm stated that he had never seen complete arrest of the blood supply from this cause The patient was a rather frail woman aged 70 married, but never pregnant, who on Nov 3rd complained after dinner of pelvic pain Next morning she was better and took her breakfast in bed as usual She could not get up afterwards because the pain became so intense and it was then accompanied by vomiting Towards evening the temperature rose to 101° F That night a hard round pelvic-tumour was found median in position, and about 4 inches in diameter Behind this and also in

the middle line lay an elongated irregularly oval mass, measuring apparently about 3½ inches from above downwards by 1½ inches from side to side This was fairly soft but of uneven consistence It seemed to be attached to the hard mass in front, and there was a soft short cervix uteri below The rectum was firmly compressed, but the abnormal parts seemed to be slightly movable as one mass in the pelvis They were very tender and therefore seemed larger and more fixed than they really were It was known that a fibromyoma existed before the patient's menstruation ceased, and it was easy to surmise that something had twisted On opening the abdomen a fibromyoma was seen attached to the left anterior upper part of the uterus This and the uterine body had revolved one full turn on the cervix, the lower end of the body being so tightly twisted that the parts above were of a deep blue black colour, and although it was only 16 hours after the pain became severe and about 28 from its first onset, the conditions caused a distinctly offensive odour Supracervical hysterectomy was performed, and the left ovary and Fallopian tube, which were raised by the new growth above the constriction, were taken away The right ovary and the greater part of its tube were below the constriction and were not removed Considerable trouble from flatulent distension followed the operation, but otherwise recovery was good although slow The specimen exhibited by Mr Malcolm showed a uterine body as big as that of a woman in the prime of life, but enlarged by congestion The softness of its tissue, due to senility, evidently facilitated the attenuation necessary to make it sufficiently narrow to become strangulated by torsion —Dr CUTHBERT LOCKYER referred to the following cases of acute torsion — 1 Poth's case shown in Berlin in May, 1913 The patient was aged 56 She had suffered from severe abdominal pain for 21 years, and was known to have a large abdominal tumour The abdomen contained blood stained fluid A pedunculated subserous myoma with a twisted pedicle was removed, and then the uterus itself was found to be twisted upon its neck through 360 degrees from left to right 2 In August, 1914, Dr T W Eden and Dr Lockyer operated on a case in which a similar condition was discovered The large myomatous uterus was blue black in colour, and both appendages were engorged with blood and thrombotic 3 Steinbuchel's case, in which severe internal hæmorrhage resulted from rupture of one of the vessels which was severed during torsion of the pedicle 4 Grunert's case, where a moderate degree of torsion of the uterine body (90 degrees) led to very acute symptoms simulating the acute torsion of an ovarian cyst 5 Jolly's case, in which a torsioned myomatous uterus became impacted in the pelvis and led to displacement and blocking of the ureters double surgical kidney and death from uræmia Dr Lockyer thought that the causation of torsion of the uterine body was still a subject for speculation When, as in Poth's case, the pedicle of a large myomatous uterus became twisted it was not difficult to understand that a small uterine body lying below might share in the process, especially since it is acknowledged that once torsion has taken place it is apt to be progressive In a case like Mr Malcolm's where the tumour had a wide attachment to the uterus it must be assumed that in trying to rise out of the pelvis it met with resistance, to overcome which rotation of the tumour and of the uterine body was brought into play The fact that these cases occurred in women over 50 years of age was noteworthy

Dr F J McCANN showed (1) A specimen of Pregnancy in a Large Fibromyomatous Uterus, and (2) a specimen of Soft Fibroma of the Vaginal Wall

Dr H RUSSELL ANDREWS read a short communication on three cases of Hæmatoma of the Abdominal Wall 1 A patient eight months pregnant was admitted to the London Hospital very ill with pulse rate 135 per minute temperature 101° F at night, respirations 28–36 per minute with severe cough and much dyspnœa The pregnant uterus was felt in the left half of the abdomen while the right half was filled by a large exquisitely tender tumour A premature stillborn child was born 30 hours after admission The patient's general condition was such as to contra indicate abdominal section until several days after her admission A diagnosis of ovarian cyst with localised peritonitis was made At the operation the tumour was found to be a hæmatoma containing nearly 2 lb of blood between the right transversalis muscle and the transversalis fascia 2 A patient was sent into the London Hospital with a diagnosis of twisted ovarian tumour For two weeks she had had a painful swelling in the left side of the abdomen after carrying a pair of steps upstairs Dr Andrews made a diagnosis of hæmorrhage into, or round, a desmoid tumour in the left rectus The tumour proved to be a hæmatoma in the left rectus muscle spreading out a short distance between the transversalis muscle and the transversalis fascia 3 A patient under the care of the late Dr Maxwell had a painful swelling on the left side of the abdomen, which had appeared a week previously with coughing This swelling was found to be a hæmatoma, which had apparently originated between the left rectus and tracked outwards Dr Andrews referred to four previously recorded cases of hæmatoma of the abdominal wall Four of the seven patients were pregnant and four complained of cough —The PRESIDENT thought that these cases must be very rare, as he had seen only one instance during a somewhat long experience —Mr MALCOLM and Dr AMAND ROUTH had also each seen one case, the latter in a woman who had for some time had a small umbilical hernia, the ring of which suddenly gave way during a sudden effort, and hæmorrhage took place below the protruding bowel

Dr McCANN read a short communication on a case of Abdominal Pregnancy, probably Primary

Dr JOHN PHILLIPS read a paper on Acute Hepatic Toxæmias Complicating Pregnancy and Labour In bringing the subject forward for discussion he noted that no previous consideration of this complication of pregnancy and labour had ever taken place before this society He related five cases arising in just over 2000 carefully recorded cases of labour in private practice which presented many similar features and which could be placed in one group Many of the symptoms were similar to those observed in acute yellow atrophy and late chloroform poisoning These symptoms were carefully compared, and Dr Phillips concluded that the disease in his cases was due to an ascending toxæmia of the bile ducts —The PRESIDENT thought it noteworthy that only five cases of hepatic toxæmia had occurred in a total of 2000 deliveries He judged from this fact that a special combination of morbid conditions was needed to bring about the storm Again, the rapid fatality in two of the cases and the milder attack in those which recovered suggested the same idea of varying intensity of combination In formulating any theory three factors would have to be considered (1) The changes in the liver cells associated with fatty metamorphosis, (2) the action of toxic substances ascending by way of the bile ducts from the intestine, and (3) the influence of chloroform as a determining cause He agreed with Dr Phillips that the mischief was started by intestinal disease and spread along the line of the hepatic vessels and ducts Fatty metamorphosis and chloroform inhalation were possibly additional factors in determining the onset and severity of the symptoms —Dr ROUTH thought the title of Dr Phillips's paper might be altered to "Toxæmia in Pregnancy Affecting the Liver" for he thought true pregnancy toxæmia began in the cells of the chorionic villi and affected different secreting or glandular organs, according to the type of toxin or the condition of the patient's organs Most of Dr Phillips's cases were associated with bacillus coli cystitis and in such cases the liver troubles might be due to ascending intestinal infection by the same organism or by toxins derived from those bacilli —Dr HERBERT WILLIAMSON said that thanks were due to Dr Phillips for focussing attention upon a group of cases which were occasionally met with in practice and which gave rise to a considerable degree of anxiety He was not however, able to accept the suggestion that the group of cases reported in the paper constituted a clinical entity He agreed that they were cases of toxæmia and that the toxins had evidently produced severe hepatic lesions Clinical and pathological observation suggested that during pregnancy the liver appeared to be peculiarly susceptible to the action of toxins, and it was clearly established that the incidence of acute yellow atrophy was much greater in the pregnant than in the non gravid state Dr Phillips's cases supported the view he (Dr Williamson) took that given the susceptibility, the actual lesions might be produced by a variety of toxic agents such as poisons produced by the epiblastic tissues of the chorionic villi poisons produced by the bacillus coli communis or chemical poisons such as chloroform He thought that all these three groups were represented in the collection of cases reported by Dr Phillips — Dr WALTER GRIFFITH and Dr FARDLEY HOLLAND also discussed the paper

Reviews and Notices of Books.

Serums, Vaccines, and Toxins in Treatment and Diagnosis

By WILLIAM CECIL BOSANQUET M A., M D Oxon, F R C P LOND, Physician to the Charing Cross Hospital, and JOHN W H EYRE M.D, M S Dunelm., F R S Edin Director of the Bacteriological Department of Guy's Hospital Third edition Illustrated London Cassell and Co 1916 Pp 456 Price 9s net

IT is more than six years since we noticed the second edition of this valuable little volume on a very big subject. The intervening period has been so fruitful in research and has witnessed such notable advances in methods of diagnosis and treatment that the authors have found an exhaustive revision necessary, entailing the addition of nearly 100 pages of new matter A perusal of the book will assure the reader that additions are to be found on nearly every page containing abstracts of recent publications as well as, in most cases, the conclusions drawn by the authors from their own observations Experience drawn from the present war is still too tentative for sweeping conclusions except in certain particulars Of the prophylactic use of tetanus antitoxin the confident statement "There is ample evidence that antitoxin proves of greatest service in the prevention of tetanus" takes the place of the hope expressed in the previous edition And of antityphoid inoculation the authors state in their new edition that the experience gained during the present war forms a striking testimony to the value of antityphoid vaccination as practised in the British army, instead of the faint recommendation of inoculation to persons going into parts of the world where enteric fever is very prevalent On the other hand, the recent work on the serum or vaccine treatment of tetanus, typhoid and cerebro spinal fever is given with due reserve as to the worth of these methods With the inclusion of most work of real value we miss the report by Surgeon General H D Rolleston on the serum treatment of cerebro spinal fever in the navy A new chapter, headed "Diseases due to Protozoa,' has been introduced containing a useful summary of the principles of chemotherapy, and although admittedly trespassing somewhat outside the domain indicated by the title we agree with the authors that they were justified in its inclusion Mention of the sulphur and antimony substitutes for organic arsenic compounds brings the subject matter up to quite recent date

We assume that this new edition of Dr Bosanquet and Dr Eyre s book will be widely used by many who cannot readily refer to original sources It is therefore the more regrettable that a serious error in the second edition has been allowed in part to creep over into the third In the second paragraph on the mode of using tuberculin for diagnostic purposes commencing on p 304, it is correctly stated that Koch recommended an initial dose of 0 001 c c or of 0 0001 c c in delicate individuals, and a second dose of double the quantity if no reaction takes place It is then stated "If however no effect is produced by the small doses they may be increased to 0 5 and even to 1 0 c c , and this final dose may be administered twice in order to make sure of the absence of a reaction' Koch is here credited with having recommended an increase of 500 times or 1000 times the initial dose Of course, he did nothing of the sort He recommended an increase of five or ten times only, and the error has occurred in the text from rendering 5 mg and 10 mg , which are the actual quantities Koch gives as 0 5 and 1 0 c c instead of 0 005 and 0-01 c c Koch himself laid stress on the fact that 10 mg or 0 01 c c of Old Tuberculin was the largest amount that could be given without risking a reaction in the non tuberculous subject and he records having administered 250 mg or 0 25 c.c to himself and been rewarded with a severe and painful reaction The same error is present in all the figures given in the third paragraph Junker advised a series of 1/10 5/10 1 5 and 10 mg or 0-0001 0 0005 0-001 0 005 and 0-01 c c and not the hundredfold doses stated in the text Löwenstein and Kauffmann s valuable suggestion to give a series of four equal doses of 0-0002 c c is rendered as four doses of 0 02 c c. , Röpke is similarly misrepresented and so it goes on Only Trudeau s dosage has been correctly revised, and the authors' conclusion that one thousandth of a cubic centimetre is probably the largest dose which should ever be administered for diagnosis, and their recommendation of the series 0 0001 0 0002 0 0005, and 0 001 c c as the most suitable are not widely different from those of the authorities whom they misrepresent An early opportunity will doubtless be taken of correcting errors which, if followed might have dangerous results

Apart from this blemish and from a tendency to retain for completeness sake preparations no longer used for which oblivion would have been appropriate, we should like to emphasise our high opinion of this manual The language throughout the book is clear, the explanations simple and lucid, original references are supplied to all important work, and the reader is given a sound basis for his knowledge and opportunity of readily pursuing it further

Monographs on Biochemistry The Respiratory Exchange of Animals and Man

By AUGUST KROGH Ph D, Reader in Zoophysiology, University of Copenhagen With diagrams London Longmans, Green, and Co 1916 Pp 173 Price 6s net

THE editors of this series continue their praiseworthy task of supplying monographs on specific physiological problems by authors who themselves have been active workers on the several subjects In the latest monograph, which is before us, Dr Krogh, of Copenhagen points out that the subject of the respiratory exchange of animals belongs rather to the domain of chemical physiology than to that of physiological chemistry The book deals with very few substances, and with their quantities, not their qualities and the reader will find it to be an excellent résumé and exposition of a difficult subject including descriptions of technique which differ somewhat from that employed in other branches of biochemical work

The following are some of the problems dealt with The physiological significance of the exchange of oxygen and carbonic acid including the carbon balance, respiratory quotient, and direct and indirect calorimetry, methods for measuring the respiratory exchanges, the exchange of nitrogen, hydrogen methane, ammonia and other gases of minor importance, standard metabolism and the influence of internal factors on it and the variations in standard metabolism during the life cycle of the individual, the influence of chemical and physical factors upon the respiratory mechanism, and lastly the respiratory exchange in different animals The author points out that in studying the respiratory exchange of an animal we have to do with a quantity which is variable in the extreme In man the maximum respiratory activity is 10 to 20 times the minimum in one and the same individual, and in many lower animals the maximum may be several hundred times the minimum The factor which is of paramount importance in determining the metabolism is the functional activity This shows one of the difficulties of obtaining the standard metabolism of an organism To pharmacologists the chapter on the influence of various drugs will prove attractive The old view of Pflüger (1873) that the animal cell itself determines its own respiratory exchange has recently been contested by Thunberg (1905) who maintains that the oxidative processes must increase with increased oxygen pressure and gradually approach a maximum Another view, that of Moleschott (1855) that the respiratory exchange of animals is higher in light than in darkness must, it appears be given up—the most recent experiments show that no measurable effect of light could be detected, but even this does not satisfy the author, who suggests that experiments be made on hyaline aquatic animals suitably narcotised to ensure standard conditions The chapter on hibernation in mammals is interesting Not a single bird manifests this phenomenon

A valuable bibliography of nearly 16 pages gives some idea of the 'intensive' study devoted to this limited yet fundamental problem in chemical physiology Every physiologist must feel that Dr Krogh has rendered a notable service by presenting in a readable and easily assimilable form the results of his research

LIBRARY TABLE

A Contribution to a Knowledge of Canadian Ticks By GORDON HEWITT D Sc. Scientific Contributions from the Entomological Branch Department of Agriculture Ottawa Reprinted from the Transactions of the Royal Society of

the middle line lay an elongated irregularly oval mass, measuring apparently about 3½ inches from above downwards by 1½ inches from side to side This was fairly soft but of uneven consistence It seemed to be attached to the hard mass in front, and there was a soft short cervix uteri below The rectum was firmly compressed, but the abnormal parts seemed to be slightly movable as one mass in the pelvis They were very tender and therefore seemed larger and more fixed than they really were It was known that a fibromyoma existed before the patient's menstruation ceased, and it was easy to surmise that something had twisted On opening the abdomen a fibromyoma was seen attached to the left anterior upper part of the uterus This and the uterine body had revolved one full turn on the cervix, the lower end of the body being so tightly twisted that the parts above were of a deep blue-black colour, and although it was only 16 hours after the pain became severe and about 28 from its first onset, the conditions caused a distinctly offensive odour Supracervical hysterectomy was performed, and the left ovary and Fallopian tube, which were raised by the new growth above the constriction, were taken away The right ovary and the greater part of its tube were below the constriction and were not removed Considerable trouble from flatulent distension followed the operation, but otherwise recovery was good although slow The specimen exhibited by Mr Malcolm showed a uterine body as big as that of a woman in the prime of life, but enlarged by congestion The softness of its tissue, due to senility, evidently facilitated the attenuation necessary to make it sufficiently narrow to become strangulated by torsion —Dr CUTHBERT LOCKYER referred to the following cases of acute torsion — 1 Poth's case shown in Berlin in May, 1913 The patient was aged 56 She had suffered from severe abdominal pain for 21 years, and was known to have a large abdominal tumour The abdomen contained blood stained fluid A pedunculated subserous myoma with a twisted pedicle was removed, and then the uterus itself was found to be twisted upon its neck through 360 degrees from left to right 2 In August, 1914, Dr T W Eden and Dr Lockyer operated on a case in which a similar condition was discovered The large myomatous uterus was blue black in colour, and both appendages were engorged with blood and thrombotic 3 Steinbuchel's case, in which severe internal hæmorrhage resulted from rupture of one of the vessels which was severed during torsion of the pedicle 4 Grunert s case, where a moderate degree of torsion of the uterine body (90 degrees) led to very acute symptoms simulating the acute torsion of an ovarian cyst 5 Jolly's case, in which a torsioned myomatous uterus became impacted in the pelvis and led to displacement and blocking of the ureters, double surgical kidney and death from uræmia Dr Lockyer thought that the causation of torsion of the uterine body was still a subject for speculation When, as in Poth s case, the pedicle of a large myomatous uterus became twisted it was not difficult to understand that a small uterine body lying below might share in the process, especially since it is acknowledged that once torsion has taken place it is apt to be progressive In a case like Mr Malcolm's, where the tumour had a wide attachment to the uterus it must be assumed that in trying to rise out of the pelvis it met with resistance, to overcome which rotation of the tumour and of the uterine body was brought into play The fact that these cases occurred in women over 50 years of age was noteworthy

Dr F J McCANN showed (1) A specimen of Pregnancy in a Large Fibromyomatous Uterus, and (2) a specimen of Soft Fibroma of the Vaginal Wall

Dr H RUSSELL ANDREWS read a short communication on three cases of Hæmatoma of the Abdominal Wall 1 A patient eight months pregnant was admitted to the London Hospital very ill with pulse-rate 135 per minute temperature 101° F at night, respirations 28–36 per minute with severe cough and much dyspnœa The pregnant uterus was felt in the left half of the abdomen while the right half was filled by a large, exquisitely tender tumour A premature stillborn child was born 30 hours after admission The patient s general condition was such as to contra indicate abdominal section until several days after her admission A diagnosis of ovarian cyst with localised peritonitis was made At the operation the tumour was found to be a hæmatoma containing nearly 2 lb of blood between the right transversalis muscle and the transversalis fascia 2 A patient was sent into the London Hospital with a diagnosis of twisted ovarian tumour For two weeks she had had a painful swelling in the left side of the abdomen after carrying a pair of steps upstairs Dr Andrews made a diagnosis of hæmorrhage into, or round, a desmoid tumour in the left rectus The tumour proved to be a hæmatoma in the left rectus muscle spreading out a short distance between the transversalis muscle and the transversalis fascia 3 A patient under the care of the late Dr Maxwell had a painful swelling on the left side of the abdomen, which had appeared a week previously with coughing This swelling was found to be a hæmatoma, which had apparently originated between the left rectus and tracked outwards Dr Andrews referred to four previously recorded cases of hæmatoma of the abdominal wall Four of the seven patients were pregnant, and four complained of cough —The PRESIDENT thought that these cases must be very rare, as he had seen only one instance during a somewhat long experience —Mr MALCOLM and Dr AMAND ROUTH had also each seen one case, the latter in a woman who had for some time had a small umbilical hernia, the ring of which suddenly gave way during a sudden effort, and hæmorrhage took place below the protruding bowel

Dr McCANN read a short communication on a case of Abdominal Pregnancy, probably Primary

Dr JOHN PHILLIPS read a paper on Acute Hepatic Toxæmias Complicating Pregnancy and Labour In bringing the subject forward for discussion he noted that no previous consideration of this complication of pregnancy and labour had ever taken place before this society He related five cases arising in just over 2000 carefully recorded cases of labour in private practice which presented many similar features and which could be placed in one group Many of the symptoms were similar to those observed in acute yellow atrophy and late chloroform poisoning These symptoms were carefully compared, and Dr Phillips concluded that the disease in his cases was due to an ascending toxæmia of the bile ducts —The PRESIDENT thought it noteworthy that only five cases of hepatic toxæmia had occurred in a total of 2000 deliveries He judged from this fact that a special combination of morbid conditions was needed to bring about the storm Again, the rapid fatality in two of the cases and the milder attack in those which recovered suggested the same idea of varying intensity of combination In formulating any theory three factors would have to be considered (1) The changes in the liver cells associated with fatty metamorphosis, (2) the action of toxic substances ascending by way of the bile ducts from the intestine, and (3) the influence of chloroform as a determining cause He agreed with Dr Phillips that the mischief was started by intestinal disease and spread along the line of the hepatic vessels and ducts Fatty metamorphosis and chloroform inhalation were possibly additional factors in determining the onset and severity of the symptoms —Dr ROUTH thought the title of Dr Phillips s paper might be altered to "Toxæmia in Pregnancy Affecting the Liver," for he thought true pregnancy toxæmia began in the cells of the chorionic villi and affected different secreting or glandular organs according to the type of toxin or the condition of the patient's organs Most of Dr Phillips s cases were associated with bacillus coli cystitis and in such cases the liver troubles might be due to ascending intestinal infection by the same organism or by toxins derived from those bacilli —Dr HERBERT WILLIAMSON said that thanks were due to Dr Phillips for focussing attention upon a group of cases which were occasionally met with in practice and which gave rise to a considerable degree of anxiety He was not however, able to accept the suggestion that the group of cases reported in the paper constituted a clinical entity He agreed that they were cases of toxæmia and that the toxins had evidently produced severe hepatic lesions Clinical and pathological observation suggested that during pregnancy the liver appeared to be peculiarly susceptible to the action of toxins and it was clearly established that the incidence of acute yellow atrophy was much greater in the pregnant than in the non gravid state Dr Phillips s cases supported the view he (Dr Williamson) took that given the susceptibility, the actual lesions might be produced by a variety of toxic agents such as poisons produced by the epithelial tissues of the chorionic villi poisons produced by the bacillus coli communis or chemical poisons such as chloroform He thought that all these three groups were represented in the collection of cases reported by Dr Phillips — Dr WALTER GRIFFITH and Dr FARDLEY HOLLAND also discussed the paper

Reviews and Notices of Books.

Serums, Vaccines, and Toxins in Treatment and Diagnosis

By WILLIAM CECIL BOSANQUET M A., M D Oxon F R C P Lond, Physician to the Charing Cross Hospital, and JOHN W H EYRE M D, M S Dunelm, F R S Edin Director of the Bacteriological Department of Guy's Hospital Third edition Illustrated London Cassell and Co 1916 Pp 456 Price 9s net

IT is more than six years since we noticed the second edition of this valuable little volume on a very big subject The intervening period has been so fruitful in research and has witnessed such notable advances in methods of diagnosis and treatment that the authors have found an exhaustive revision necessary, entailing the addition of nearly 100 pages of new matter A perusal of the book will assure the reader that additions are to be found on nearly every page containing abstracts of recent publications as well as in most cases, the conclusions drawn by the authors from their own observations Experience drawn from the present war is still too tentative for sweeping conclusions except in certain particulars Of the prophylactic use of tetanus antitoxin the confident statement "There is ample evidence that antitoxin proves of greatest service in the prevention of tetanus" takes the place of the hope expressed in the previous edition And of antityphoid inoculation the authors state in their new edition that the experience gained during the present war forms a striking testimony to the value of antityphoid vaccination as practised in the British army, instead of the faint recommendation of inoculation to persons going into parts of the world where enteric fever is very prevalent On the other hand, the recent work on the serum or vaccine treatment of tetanus, typhoid and cerebro-spinal fever is given with due reserve as to the worth of these methods With the inclusion of most work of real value we miss the report by Surgeon General H D Rolleston on the serum treatment of cerebro spinal fever in the navy A new chapter headed 'Diseases due to Protozoa, has been introduced containing a useful summary of the principles of chemotherapy and although admittedly trespassing somewhat outside the domain indicated by the title we agree with the authors that they were justified in its inclusion Mention of the sulphur and antimony substitutes for organic arsenic compounds brings the subject matter up to quite recent date

We assume that this new edition of Dr Bosanquet and Dr Eyre's book will be widely used by many who cannot readily refer to original sources It is therefore the more regrettable that a serious error in the second edition has been allowed in part to creep over into the third In the second paragraph on the mode of using tuberculin for diagnostic purposes commencing on p 304 it is correctly stated that Koch recommended an initial dose of 0 001 c c or of 0·0001 c c in delicate individuals and a second dose of double the quantity if no reaction takes place It is then stated "If however no effect is produced by the small doses they may be increased to 0 5 and even to 1·0 c c , and this final dose may be administered twice in order to make sure of the absence of a reaction Koch is here credited with having recommended an increase of 500 times or 1000 times the initial dose Of course he did nothing of the sort He recommended an increase of five or ten times only and the error has occurred in the text from rendering 5 mg and 10 mg , which are the actual quantities Koch gives as 0 5 and 1 0 c c instead of 0 005 and 0·01 c c Koch himself laid stress on the fact that 10 mg or 0·01 c c of Old Tuberculin was the largest amount that could be given without risking a reaction in the non tuberculous subject and he records having administered 250 mg or 0 25 c.c to himself and been rewarded with a severe and painful reaction The same error is present in all the figures given in the third paragraph Junker advised a series of 1/10 5/10 1 5 and 10 mg or 0·0001 0·0005 0·001 0 005 and 0·01 c c and not the hundredfold doses stated in the text Löwenstein and Kauffmann's valuable suggestion to give a series of four equal doses of 0·0002 c c is rendered as four doses of 0 02 c c , Rupke is similarly misrepresented and so it goes on Only Trudeau's dosage has been correctly revised and the authors conclusion that one thousandth of a cubic centimetre is probably the largest dose which should ever be administered for diagnosis and their recommendation of the series 0 0001 0 0002 0·0005, and 0 001 c c as the most suitable are not widely different from those of the authorities whom they misrepresent An early opportunity will doubtless be taken of correcting errors which, if followed, might have dangerous results

Apart from this blemish and from a tendency to retain for completeness sake preparations no longer used for which oblivion would have been appropriate, we should like to emphasise our high opinion of this manual The language throughout the book is clear the explanations simple and lucid, original references are supplied to all important work, and the reader is given a sound basis for his knowledge and opportunity of readily pursuing it further

Monographs on Biochemistry The Respiratory Exchange of Animals and Man

By AUGUST KROGH Ph D, Reader in Zoophysiology, University of Copenhagen With diagrams London Longmans, Green, and Co 1916 Pp 173 Price 6s net

THE editors of this series continue their praiseworthy task of supplying monographs on specific physiological problems by authors who themselves have been active workers on the several subjects In the latest monograph, which is before us, Dr Krogh of Copenhagen, points out that the subject of the respiratory exchange of animals belongs rather to the domain of chemical physiology than to that of physiological chemistry The book deals with very few substances, and with their quantities, not their qualities and the reader will find it to be an excellent résumé and exposition of a difficult subject including descriptions of technique which differ somewhat from that employed in other branches of biochemical work

The following are some of the problems dealt with. The physiological significance of the exchange of oxygen and carbonic acid including the carbon balance, respiratory quotient, and direct and indirect calorimetry, methods for measuring the respiratory exchanges, the exchange of nitrogen hydrogen methane, ammonia, and other gases of minor importance, standard metabolism and the influence of internal factors on it and the variations in standard metabolism during the life cycle of the individual, the influence of chemical and physical factors upon the respiratory mechanism, and lastly the respiratory exchange in different animals The author points out that in studying the respiratory exchange of an animal we have to do with a quantity which is variable in the extreme In man the maximum respiratory activity is 10 to 20 times the minimum in one and the same individual and in many lower animals the maximum may be several hundred times the minimum The factor which is of paramount importance in determining the metabolism is the functional activity This shows one of the difficulties of obtaining the standard metabolism of an organism To pharmacologists the chapter on the influence of various drugs will prove attractive The old view of Pflüger (1873) that the animal cell itself determines its own respiratory exchange has recently been contested by Thunberg (1905), who maintains that the oxidative processes must increase with increased oxygen pressure and gradually approach a maximum Another view, that of Moleschott (1855) that the respiratory exchange of animals is higher in light than in darkness, must it appears be given up—the most recent experiments show that no measurable effect of light could be detected, but even this does not satisfy the author who suggests that experiments be made on hyaline aquatic animals suitably narcotised to ensure standard conditions The chapter on hibernation in mammals is interesting Not a single bird manifests this phenomenon

A valuable bibliography of nearly 16 pages gives some idea of the "intensive study devoted to this limited yet fundamental problem in chemical physiology Every physiologist must feel that Dr Krogh has rendered a notable service by presenting in a readable and easily assimilable form the results of his research

LIBRARY TABLE

A Contribution to a Knowledge of Canadian Ticks By GORDON HEWITT D Sc. Scientific Contributions from the Entomological Branch Department of Agriculture Ottawa Reprinted from the Transactions of the Royal Society of

the middle line lay an elongated irregularly oval mass, measuring apparently about 3½ inches from above downwards by 1½ inches from side to side This was fairly soft but of uneven consistence It seemed to be attached to the hard mass in front, and there was a soft short cervix uteri below The rectum was firmly compressed, but the abnormal parts seemed to be slightly movable as one mass in the pelvis They were very tender and therefore seemed larger and more fixed than they really were It was known that a fibromyoma existed before the patient's menstruation ceased, and it was easy to surmise that something had twisted On opening the abdomen a fibromyoma was seen attached to the left anterior upper part of the uterus This and the uterine body had revolved one full turn on the cervix, the lower end of the body being so tightly twisted that the parts above were of a deep blue black colour, and although it was only 16 hours after the pain became severe and about 28 from its first onset, the conditions caused a distinctly offensive odour Supracervical hysterectomy was performed, and the left ovary and Fallopian tube, which were raised by the new growth above the constriction, were taken away The right ovary and the greater part of its tube were below the constriction and were not removed. Considerable trouble from flatulent distension followed the operation, but otherwise recovery was good although slow The specimen exhibited by Mr Malcolm showed a uterine body as big as that of a woman in the prime of life, but enlarged by congestion The softness of its tissue, due to senility, evidently facilitated the attenuation necessary to make it sufficiently narrow to become strangulated by torsion —Dr CUTHBERT LOCKYER referred to the following cases of acute torsion — 1 Poth's case shown in Berlin in May, 1913 The patient was aged 56 She had suffered from severe abdominal pain for 21 years, and was known to have a large abdominal tumour The abdomen contained blood stained fluid A pedunculated subserous myoma with a twisted pedicle was removed, and then the uterus itself was found to be twisted upon its neck through 360 degrees from left to right 2 In August, 1914, Dr T W Eden and Dr Lockyer operated on a case in which a similar condition was discovered The large myomatous uterus was blue black in colour, and both appendages were engorged with blood and thrombotic 3 Steinbuchel's case, in which severe internal hæmorrhage resulted from rupture of one of the vessels which was severed during torsion of the pedicle 4 Grunert's case, where a moderate degree of torsion of the uterine body (90 degrees) led to very acute symptoms simulating the acute torsion of an ovarian cyst 5 Jolly s case, in which a torsioned myomatous uterus became impacted in the pelvis and led to displacement and blocking of the ureters double surgical kidney and death from uræmia Dr Lockyer thought that the causation of torsion of the uterine body was still a subject for speculation When, as in Poth s case, the pedicle of a large myomatous uterus became twisted it was not difficult to understand that a small uterine body lying below might share in the process, especially since it is acknowledged that once torsion has taken place it is apt to be progressive In a case like Mr Malcolm's where the tumour had a wide attachment to the uterus it must be assumed that in trying to rise out of the pelvis it met with resistance, to overcome which rotation of the tumour and of the uterine body was brought into play The fact that these cases occurred in women over 50 years of age was noteworthy

Dr F J McCANN showed (1) A specimen of Pregnancy in a Large Fibromyomatous Uterus, and (2) a specimen of Soft Fibroma of the Vaginal Wall

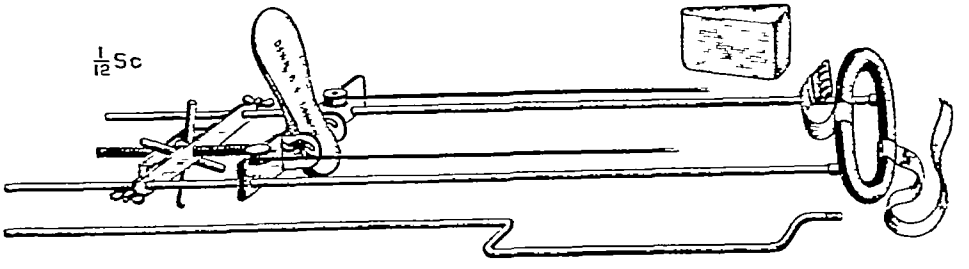
Dr H RUSSELL ANDREWS read a short communication on three cases of Hæmatoma of the Abdominal Wall 1 A patient eight months pregnant was admitted to the London Hospital very ill with pulse rate 135 per minute, temperature 101° F at night, respirations 28–36 per minute with severe cough and much dyspnœa The pregnant uterus was felt in the left half of the abdomen while the right half was filled by a large exquisitely tender tumour A premature stillborn child was born 30 hours after admission The patient s general condition was such as to contra indicate abdominal section until several days after her admission A diagnosis of ovarian cyst with localised peritonitis was made At the operation the tumour was found to be a hæmatoma containing nearly 2 lb of blood between the right transversalis muscle and the transversalis fascia. 2 A patient was sent into the London Hospital with a diagnosis of twisted ovarian tumour For two weeks she had had a painful swelling in the left side of the abdomen after carrying a pair of steps upstairs Dr Andrews made a diagnosis of hæmorrhage into, or round, a desmoid tumour in the left rectus The tumour proved to be a hæmatoma in the left rectus muscle spreading out a short distance between the transversalis muscle and the transversalis fascia. 3 A patient under the care of the late Dr Maxwell had a painful swelling on the left side of the abdomen, which had appeared a week previously with coughing This swelling was found to be a hæmatoma, which had apparently originated between the left rectus and tracked outwards Dr Andrews referred to four previously recorded cases of hæmatoma of the abdominal wall Four of the seven patients were pregnant and four complained of cough —The PRESIDENT thought that these cases must be very rare, as he had seen only one instance during a somewhat long experience —Mr MALCOLM and Dr AMAND ROUTH had also each seen one case the latter in a woman who had for some time had a small umbilical hernia, the ring of which suddenly gave way during a sudden effort and hæmorrhage took place below the protruding bowel

Dr McCANN read a short communication on a case of Abdominal Pregnancy, probably Primary

Dr JOHN PHILLIPS read a paper on Acute Hepatic Toxæmias Complicating Pregnancy and Labour In bringing the subject forward for discussion he noted that no previous consideration of this complication of pregnancy and labour had ever taken place before this society He related five cases arising in just over 2000 carefully recorded cases of labour in private practice which presented many similar features and which could be placed in one group Many of the symptoms were similar to those observed in acute yellow atrophy and late chloroform poisoning These symptoms were carefully compared, and Dr Phillips concluded that the disease in his cases was due to an ascending toxæmia of the bile ducts —The PRESIDENT thought it noteworthy that only five cases of hepatic toxæmia had occurred in a total of 2000 deliveries He judged from this fact that a special combination of morbid conditions was needed to bring about the storm Again the rapid fatality in two of the cases and the milder attack in those which recovered suggested the same idea of varying intensity of combination In formulating any theory three factors would have to be considered (1) The changes in the liver cells associated with fatty metamorphosis, (2) the action of toxic substances ascending by way of the bile ducts from the intestine, and (3) the influence of chloroform as a determining cause He agreed with Dr Phillips that the mischief was started by intestinal disease and spread along the line of the hepatic vessels and ducts. Fatty metamorphosis and chloroform inhalation were possibly additional factors in determining the onset and severity of the symptoms —Dr ROUTH thought the title of Dr Phillips s paper might be altered to 'Toxæmia in Pregnancy Affecting the Liver," for he thought true pregnancy toxæmia began in the cells of the chorionic villi and affected different secreting or glandular organs according to the type of toxin or the condition of the patient s organs Most of Dr Phillips s cases were associated with bacillus coli cystitis and in such cases the liver troubles might be due to ascending intestinal infection by the same organism or by toxins derived from those bacilli —Dr HERBERT WILLIAMSON said that thanks were due to Dr Phillips for focussing attention upon a group of cases which were occasionally met with in practice and which gave rise to a considerable degree of anxiety He was not, however, able to accept the suggestion that the group of cases reported in the paper constituted a clinical entity He agreed that they were cases of toxæmia and that the toxins had evidently produced severe hepatic lesions Clinical and pathological observation suggested that during pregnancy the liver appeared to be peculiarly susceptible to the action of toxins and it was clearly established that the incidence of acute yellow atrophy was much greater in the pregnant than in the non gravid state. Dr Phillips s cases supported the view he (Dr Williamson) took that given the susceptibility the actual lesions might be produced by a variety of toxic agents such as poisons produced by the epithelial tissues of the chorionic villi poisons produced by the bacillus coli communis or chemical poisons such as chloroform He thought that all these three groups were represented in the collection of cases reported by Dr Phillips —Dr WALTER GRIFFITH and Dr FARDLEY HOLLAND also discussed the paper

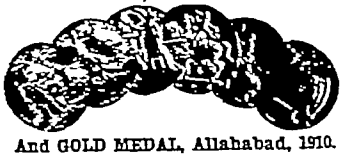
DOWN BROS.' SPECIALITIES.

The Wallace-Maybury Extension Splint (with Down Bros.' Improved Mechanism).



The advantage claimed is that extension is applied without imparting unnecessary movement to the limb

GRAND PRIX.
Paris 1900 Brussels, 1910. Buenos Ayres 1910



And GOLD MEDAL, Allahabad, 1910.

MANUFACTURED BY
SURGICAL INSTRUMENT MANUFACTURERS

DOWN BROS., Ltd.,
21 & 23, St. Thomas's St., London, S.E.
(Opposite GUY'S HOSPITAL)
Factory KING'S HEAD YARD, LONDON, S E
Telegraphic Address "DOWN LONDON" Telephone HOP 4400 (4 lines)

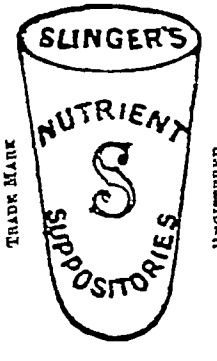
---

a Guarantee!

Cadbury's Cocoa

is absolutely pure and prepared only from the finest selected cocoa

(Cadbury, Bournville)



Consisting of nearly pure PEPTONS and EXTRACTIVES from the ARTIFICIAL DIGESTION of MEAT

Five Suppositories contain the Extractive of 20 ounces of Meat in addition to the Peptone

R H BOUCHIER NICHOLSON Esq Hull Infirmary in a case of Gastrostomy, says—"*The Beef Suppositories* (made by SLINGER & SON York) *were of much benefit, the man saying he felt great comfort from their use. The man was saved the pangs of starvation from which he was fast sinking when I first saw him*

Manufactured only by RAIMES & CO (Successors to SLINGER & SON) Wholesale Druggists York. Wholesale Agents: Messrs NEWBERY & SON 27 & 28, Charterhouse-square, London, E C

May also be had of all Wholesale Druggists and Chemists Sundrymen

---

DISPENSING BOTTLES & PHIALS

CLEAR BLUE TINTED, plain or graduated.
3 and 4 ounce. 6 and 8 ounce.
12 ounce.
WHITE PHIALS, plain or teaspoons
½ ounce. 1½ ounce.
1 " 2 "

Lowest Market Prices Charged

BLUE LOTION BOTTLES, all sizes

CORKS Superior quality No advance in price
6 and 8 ounce ... ... 10d. per gross in 6 gross bags.
Vials ... ... 9d per gross, in 3 gross bags.

Delivered free within seven miles, and to certain stations. Particulars on application.

I. ISAACS & CO., Glass Bottle Manufacturers,
106, Midland Road, St. Pancras. London, N W
Or ISLINGTON BOTTLE COMPANY,
7 New Inn Yard, Tottenham Court Road, London W
Orders sent to either establishment have attention.
Established 100 years
Bankers: London County and Westminster Bank Bloomsbury Branch

think the idea is a good one According to our analysis we find that this special solac contains 7 24 per cent of fat present in the same highly emulsified and suspended state as is the case with natural milk. The total solids amounted to 15 98 per cent These results represent, in fact, the composition of cow's milk with the amount of fat doubled It seems to us to be a valuable fatty food, which on account of its easy assimilability should be of service in cases where rapid nourishment is required and particularly in wasting diseases It, moreover, possesses a high energy value Its taste strongly resembles ordinary milk, as does its appearance, it is soft and creamy

TINTARA WINE

(BURGOYNE AND CO, 5, DOWGATE HILL, CANNON STREET, LONDON, E C)

This is a typical Australian red wine, full bodied and of rich colour It approaches in character, comparing it with European wines, the burgundy of France, and its analysis gives similar results The grapes produced in Australia are of a luscious character, and accordingly the product is as a rule, of a generous description In our opinion these wines in regard to flavour are often more appreciated when slightly diluted with water The taste then is mellow and quite non acid, and resembles that of the similar French wines closely Adding water, of course, means thinning the full bodied wine down to one of a more delicate kind. Thin, delicate wines do not, as a rule, bear dilution well The robustness of this wine is evidenced in the following analysis which we have made Alcohol by weight, 12 38 per cent, equal to 26 82° proof spirit, and therefore imported under the low rate of duty, extractive matters 3 47 per cent, mineral matters, 0 37 per cent, volatile acidity reckoned as acetic acid, 0 05 per cent, fixed acidity reckoned as tartaric acid, 0 45 per cent, sugar, 0 54 per cent The mineral matters contained distinct quantities of both phosphates and iron The wine is the genuine fermented product of the grape, and is thoroughly wholesome

New Inventions.

DIFFERENTIAL STETHOSCOPES

INTEREST in the relative intensities of the heart sounds has revived recently This has led to many inquiries as to the relative merits of the differential stethoscopes designed by Oertel and by Bock

The Oertel stethoscope consists of a chest piece to which a metal tube is attached, in this tube there is a slit which can be opened, and the width of the opening can be read on a scale A second tube slides over the one with a slit, and can make the slit of any length up to 4 cm To the end of this tube a Y tube is fitted which is attached to the tubes of a binaural stethoscope The arrangement provides a stethoscope with a window the area of which can be varied at pleasure and measured accurately The method of using it is to make the width of the slit 1 mm, and then slide the outer tube towards the graduated end until the slit is covered completely The chest piece is then applied over the apex of the heart and the slit uncovered until the first sound cannot be heard On shortening the slit the sound is heard again, the length of the slit when the first sound is just lost is noted The slit is once more covered by the sliding tube and then the chest piece is transfered to the aortic site and the slit uncovered again until the second sound is just lost The length of the slit is noted again In normal cases the size of the window necessary for the first sound at the apex to be lost is twice that required to prevent the second sound at the base reaching the ears If the heart is beating vigorously, and making very loud sounds, the slit must be opened to 2 or more millimeters However loud the heart sounds, their intensities can be measured by this instrument because not only does sound escape through the window but also external sound is admitted which overpowers the sound of the heart. This makes it obvious that for successful results the instrument must be used in a quiet room or in one with a constant noise

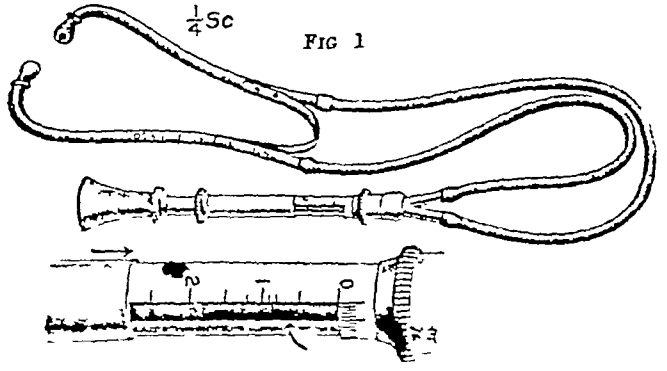


FIG 1

The Oertel stethoscope

The Bock differential stethoscope depends upon a different principle It consists of a conical chest piece attached to a circular box which is divided into two compartments by a thick metal diaphragm which is pierced by a small hole Into this hole a cone of metal can be inserted until the aperture is completely closed When the hole is closed, air borne sounds are stopped In a well made instrument with the diaphragm set correctly the screw moving the cone turns quite easily until the hole is completely closed if adjusted badly the screw becomes stiff some distance before it comes to a stop The pointer should be set at 100 when the hole is closed The method of using the instrument is by opening the aperture by one complete revolution of the screw placing the chest piece over the apex of the heart and turning the screw until the first sound is no longer heard The position is noted, the average position is 80 The pointer is turned back again to about 10 the stethoscope is applied to the aortic site, and then the pointer turned until the second sound is lost This occurs on the average at about 60 That is to say, the intensity of the first sound at the apex is audible when the hole in the diaphragm is half the size of that necessary for the conduction of the sound produced by the second sound over the aortic site Emphysema and a thick chest wall diminish the amount of sound conducted but do not alter the ratio Sometimes the heart beat is so vigorous that it can be heard when the hole is closed and the pointer is at 100 This is due to conduction through the solid part of the stethoscope To overcome this which is a rare event a felt ring may be interposed between the stethoscope and the chest wall or some poor conductor of sound introduced between the instrument and the rubber tubes In order that observations of any value shall be obtained the sound must be air borne and not transmitted through solids

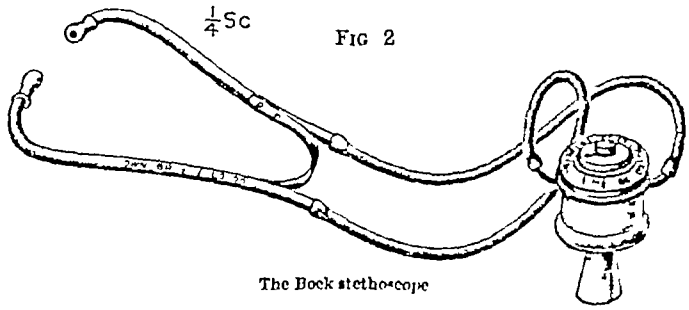


FIG 2

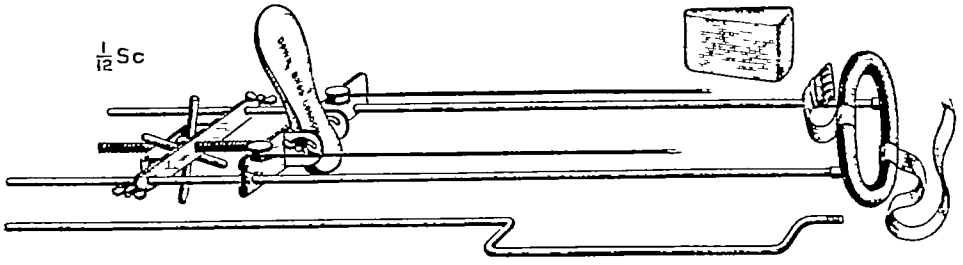
The Bock stethoscope

In my experience the *Bock stethoscope* has proved the more useful because it can be used in comparatively noisy surroundings and there is but a small percentage of hearts in which the sounds are conducted when the diaphragm is closed The Oertel stethoscope can compare intensities however vigorous the heart but for accurate work it requires an absolutely quiet room Messrs Allen and Hanburys of Wigmore street London W have made satisfactory Bock stethoscopes and Messrs Down Bros of St Thomas's street S E are making both

O [illegible] M D D Sc Lond F R C P Lond
[illegible]

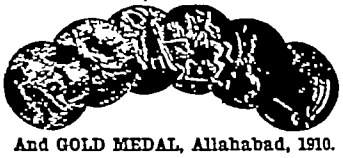
DOWN BROS.' SPECIALITIES.

The Wallace-Maybury Extension Splint (with Down Bros.' Improved Mechanism).



The advantage claimed is that extension is applied without imparting unnecessary movement to the limb

GRAND PRIX
Paris 1900 Brussels, 1910. Buenos Ayres 1910



And GOLD MEDAL, Allahabad, 1910.

MANUFACTURED BY
DOWN BROS., Ltd., SURGICAL INSTRUMENT MANUFACTURERS
21 & 23, St. Thomas's St., London, S E.
(Opposite GUY'S HOSPITAL)
Factory KING'S HEAD YARD, LONDON, S E.
Telegraphic Address DOWN LONDON" Telephone HOP 4400 (4 lines)

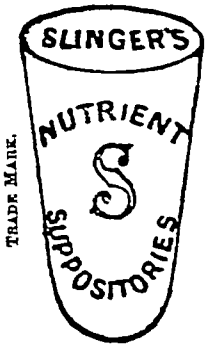
---

a Guarantee!

Cadbury's Cocoa

is absolutely pure and prepared only from the finest selected cocoa

(Cadbury Bournville)



Consisting of nearly pure PEPTONS and EXTRACTIVES from the ARTIFICIAL DIGESTION of MEAT

Five Suppositories contain the Extractive of 20 ounces of Meat in addition to the Peptone

R H BOUCHIER NICHOLSON, Esq, Hull Infirmary in a case of Gastrostomy says:—"*The Beef Suppositories* (made by SLINGER & SON York) *were of much benefit the man saying he felt great comfort from their use. The man was saved the pangs of starvation from which he was fast sinking when I first saw him.*

Manufactured only by RAIMES & CO (Successors to SLINGER & SON) Wholesale Druggists York. Wholesale Agents Messrs NEWBERY & SON 27 & 28 Charterhouse-square London E C

May also be had of all Wholesale Druggists and Chemists Sundrymen

---

DISPENSING BOTTLES & PHIALS

CLEAR BLUE TINTED, plain or graduated.
3 and 4 ounce. 6 and 8 ounce.
12 ounce.
WHITE PHIALS, plain or teaspoons
½ ounce 1½ ounce.
1 " 2 "

Lowest Market Prices Charged

BLUE LOTION BOTTLES, all sizes

CORKS Superior quality No advance in price
6 and 8 ounce ... ... 10d. per gross in 6 gross bags.
Vials ... ... 8d. per gross in 3 gross bags.

Delivered free within seven miles and to certain stations Particulars on application.

I. ISAACS & CO., Glass Bottle Manufacturers,
106, Midland Road, St Pancras London, N W
Or ISLINGTON BOTTLE COMPANY,
7, New Inn Yard, Tottenham Court Road, London, W
Orders sent to either establishment have attention.
Established 100 years
Bankers: London County and Westminster Bank Bloomsbury Branch

HYPODERMIC
PREPARATIONS

Put up in Boxes of 12 Ampoules of 1 c c. each

ADRENALINE
APOMORPHINE
ATROPINE
CAFEINE
CACODYLATES (all)
CAMPHOR IN OIL
COCAINE
COLLARGOL
DIGITALINE
ERGOTININE
ETHER
GLYCEROPHOSPHATES (all)
HUILE GRISE (all strengths)
MERCURY CYANIDE
MERCURY BENZOATE
MERCURY BINIODIDE
MORPHINE
QUININE
SPARTEINE
STRYCHNINE
&c, &c

GELATINE SALINE SOLUTION.

An Hæmostatic for intravenous injection in case of severe Hæmorrhagia, put up as following —

Box of 2 Ampoules of 20 c c.
" " 30 c c.
In Syphon Ampoule of 60 c c
" " 125 c c

PLASMA MARIN ISOTONIC

Put up as following —

Box of 2 Ampoules of 10 c c
" " 30 c c
Syphon Ampoule of 60 c c
" " 125 c c
" " 250 c c
" " 500 c c

Auto Injecteur —A special apparatus for intravenous injections of massive dosage ampoules

ELECTRIC COLLOIDS

For Intravenous Injections

Put up in —

Boxes of 6 Ampoules of 5 c c
" " 10 c c
In Phials 50 c c

ELECTRIC COLLOID SILVER
ELECTRIC COLLOID GOLD
ELECTRIC COLLOID PLATINUM
ELECTRIC COLLOID SELENIUM

For Intramuscular Injections

Put up in —

Boxes of 8 Ampoules of 1 c c

IODEOL (electric Colloid Iodine)

For Urethral Injections

Put up in —

Boxes of 6 Ampoules of 2 c c each, or in Phial of 45 c c

IODARGOL (special Colloid Iodine)

CHEMICAL COLLOIDS

For Oral Administration

BIOSULFOL colloid sulphur (entirely absorbed)

For Intramuscular Injection

CUPRASE, colloidal copper reduced in the presence of albumosic acid

Put up in —

Boxes of 8 Ampoules of 5 c c each

Cuprase is the most successful colloidal copper preparation for the medical treatment of Cancer

See report in the Proceedings of the Royal Society of Medicine February 1912

Samples of BIOSULFOL and CUPRASE with complete Literature and Clinical Reports sent on application

THE ANGLO-FRENCH DRUG COMPANY, Ltd.,
Gamage Building, Holborn, LONDON, E C

Phone 1311 HOLBORN Telegrams ' AMPSALVAS

THE LANCET.

LONDON SATURDAY JULY 1, 1916

Military Medical Home Service

THE demand for medical officers in the army still continues acute, though the number of certificates of enrolment issued by the Central Medical War Committee is now considerably over 4000, while commissions have been posted at an average of over 40 a week for nearly a year When, leaving our huge navy out of count, the size of our armies at home and abroad is considered, and when we remember the enormous scope of the operations entailed upon the Allies by their widely separated fronts, there should be no surprise either that the medical profession should be numerically strained by the circumstances, or that at any moment an excess of medical officers may exist at one place coincident with a demand at another place The categorical statements of the Director General of the Army Medical Service, as well as the detailed information which has gradually reached the country from the various seats of war have we think, dispelled the idea that our army has been hitherto rather enjoying a plethora than resenting a shortage of medical officers We are glad to notice that statements to this effect have ceased to be made in responsible quarters, and this should have an effect upon chatterers in Parliament

To meet the acute calls for medical officers with the army vigorous steps have been taken in many directions by the Central Medical War Committee and the other committees recognised by the State as responsible for the supply of medical officers to the Navy and Army The personnel of the medical profession in England and Scotland has been scrutinised, local and educational authorities have dispensed with the services of many of their officials, and all over the country there are districts which have been gravely depleted of medical men And as the urgent demand yet remained unsatisfied, some believed that a breaking point had been reached, when a wise decision not to limit the offer of commissions in the Royal Army Medical Corps to medical practitioners under 45 years of age was arrived at Many Territorial medical officers and members of *à la suite* staffs at hospitals were, of course serving in the Royal Army Medical Corps at a more advanced age, but the offer of commissions to other practitioners did not until a few days ago extend to those who were more than 45 years of age Now, under altered circumstances, an appeal is made for men to accept commissions in the Royal Army Medical Corps, being between the ages of 45 and 55 The military medical service of these middle aged officers will be at home and they will be employed especially to free the younger medical men, of whom every one who can possibly be spared should be serving with the armies in the field The older medical officers will be employed with troops which are not intended to go abroad, and we are certain that they can meet all the requirements of any army prepared and retained in these islands against the risks of invasion The hospitals staffed by the men of over 45 would be in perfectly safe hands, especially as here the part-time man can be employed, as he can be in the garrisons of the ports and military stations

It is impossible to estimate how large a number of medical practitioners there may be in the country between the ages of 45 and 55 who are available to take whole time commissions with the Royal Army Medical Corps, but the information possessed by the Central Medical War Committee is now of very precise and detailed character, so that in any given locality the needs of the community can be carefully watched—far more carefully, indeed, than at one time seemed possible In these circumstances the supply of middle aged men to take whole time commissions in the Royal Army Medical Corps who are prepared to serve with military units anywhere in the British Isles, and who can be spared from the civilian community in which they practise, ought, we think, to be forthcoming In our belief there are a good many medical men who fall within this category and who will be very pleased to avail themselves of the opportunity thus given of serving their country, and when they present themselves in substantial numbers there will, it seems to us, be very little excuse for the retention of the younger officers in this country They will also leave the garrison duty for part time men, an important point, as it is one of the many criticisms to which the Army Medical Service has been subjected that not sufficient use has been made of the part-time man As a matter of fact, the local nature of the help that he can offer is a bar to his employment save in certain capacities

Alimentary Rest in Diabetes

THE treatment of diabetes by fasting is not a new one GUELPA strongly advocated it on the ground that the disease was due to alimentary toxæmia His method yielded good results, although the theory on which it is based is not necessarily correct, and indeed is not generally accepted He recommended cautious return to the usual diet after the fast, although he did not lay down a definite plan for doing so VON NOORDEN interpolated days of fasting and also days of vegetable and egg diet, but here, again, there was no definite plan of building up the diet after such days ALLEN in America, made a decided advance in our treatment of diabetes by making the fast the first step and following it up by a scheme regulated by urinary analysis Briefly, the method is that the patient should fast till free from sugar He is allowed to drink water freely, and can take tea, coffee, and clear meat broth as desired When the 24 hour specimen of urine is

free from sugar 150 grammes of vegetables containing not more than 5 per cent of carbohydrates are added, and then 5 grammes more are added every day until 170 grammes are reached, the intake is then increased by 5 grammes every other day, foods richer in carbohydrate being gradually added, until bread is reached, unless sugar appears or the tolerance reaches 3 grammes of carbohydrate per kilogramme of body weight When the urine has been free from sugar for two days three eggs are added, equivalent to 20 grammes of protein, and thereafter 15 grammes daily in the form of meat until the patient is receiving 1 gramme of protein per kilogramme of body weight, or, if the carbohydrate tolerance is nil, only ¼ gramme per kilogramme Fat, other than that contained in the eggs and meat, is only added when this point is reached, and then 25 grammes of fat are added daily until the patient ceases to lose weight or receives not more than 40 calories daily per kilogramme of his weight If sugar returns, fasting is resumed for 24 hours or until the urine is free from sugar The diet is then increased twice as quickly as before, but the carbohydrate is not allowed to exceed half the former tolerance until the urine has been free from sugar for two weeks, and it should not then be increased more than 5 grammes per week He also advised that when the tolerance for carbohydrate is less than 20 grammes of carbohydrate fasting should be practised one day in each week When the tolerance is between 20 and 50 grammes vegetables containing 5 per cent of carbohydrates and one half the usual quantity of protein and fat are allowed on one day in the week instead of the fast If the tolerance is more than 100 grammes of carbohydrate, the intake of carbohydrate is merely halved one day each week

As often happens, different observers have been reaching a somewhat similar conclusion independently by another route GARROD and GRAHAM have mapped out a plan, largely by observations on the sugar content of the blood Their method is less drastic, and therefore easier for the patient They do not make him fast for more than 48 hours, even if the urine still contains some sugar Then two days of VON NOORDEN'S vegetable and egg diet follow After this the protein intake is gradually increased Thus 2–3 oz of ham and 3 oz of fish are added after the vegetable and egg days Next day 3 oz. of meat are substituted for the fish Another fast is advised at the end of three to four weeks if sugar is still present In both methods the diet is cautiously pushed up, but while ALLEN'S plan involves a longer fast, that of GARROD and GRAHAM demands more prolonged abstention from starchy foods LANGDON BROWN has combined the two procedures by testing the tolerance of the patient to potatoes soon after the meat stage is reached if the patient is then free from sugar The tolerance of a number of carbohydrate foods is tested in succession, such as Jerusalem artichokes green peas, apples, and milk In this way a varied diet can be arrived at fairly quickly, and as individual tolerance to various carbohydrates differs, the offending item in the diet can speedily be detected Attention has been focussed on these fasting procedures by the recent discussion opened by Dr O LEYTON at the Therapeutical Section of the Royal Society of Medicine, when Dr E I SPRIGGS reported on the experience gained at Duff House It was generally agreed by the participants in that debate that the milder cases in later life usually respond rapidly to some such method of fasting As to the more severe cases, it may be possible to free the urine from sugar for a time but sometimes at too high a cost for the general well being of the patient Even in the severer cases, however, a modified fasting plan, not on such drastic lines as ALLEN'S, will probably help more than any treatment hitherto followed

The influence of fasting on acidosis in diabetes is interesting and rather unexpected Whereas fasting causes some acidosis in a healthy individual, it diminishes acidosis in diabetes But then the acidosis in diabetes reaches a much higher figure than is ever met with in healthy persons What appears to happen is that the slight acidosis of starvation continues in the fasting diabetic, but the dangerous toxic acidosis is greatly lessened This points to the high degree of acidosis in diabetes being caused by the lavish use of proteins, and possibly fats, in the old fashioned strict diabetic diet Instead of saying that because a patient cannot assimilate carbohydrate therefore he must take more protein and fat, we must conclude that because his tolerance for carbohydrate is low it is not safe for him to indulge in an unlimited amount of other foods in the absence of carbohydrates In other words, a diet carefully balanced at a lower level is better than a lopsided diet On such a plan as this coma is much less likely to occur than on the old method, and alkalies will not be found so necessary While it is by no means true that fasting procedures are a panacea in diabetes, it is true that a short fast followed by careful graduation of the diet to the assimilative power of the individual is a decided advance on any treatment hitherto introduced This can be said without hesitation although the method has not been employed long enough yet for us to gauge its ultimate effect

---

ROYAL MICROSCOPICAL SOCIETY —At a meeting of the Royal Microscopical Society held on June 21st Miss G Lister, F L S made a communication on the Life history of Mycetozoa with Special Reference to Ceratiomyxa in which she referred to the work of Dr Jahn of the Berlin University proving that the amœbulæ produced by division of the swarm spores united in pairs as gametes to produce zygotes from which the plasmodia grew The nuclei of the zygotes had twice as many chromosomes as the nuclei of the gametes In Ceratiomyxa Dr Jahn was the first to observe the division of nuclei in the young sporophores prior to spore-formation this was found to be a reduction division and took place during the network state of the maturing sporophore To illustrate these observations lantern slides taken from the preparations lent by Dr Jahn were shown on the screen, as well as a series of slides showing the most striking forms of sporangia met with among the Mycetozoa Microscopical preparations and drawings illustrating the development of Ceratiomyxa and other Mycetozoa were exhibited by Miss Lister and also a number of drawings and specimens of the principal genera

Annotations.

Ne quid nimis"

MILK PROBLEMS

THE issue of a work[1] which on the authority of the Medical Research Committee (National Health Insurance) gives a general view of the state of knowledge on the subject of milk in its relations to public health will attract considerable attention, it may do much to clear the air and help us in regard to the problems still ahead Milk problems are full of difficulty, and it is well to have before us the data in a collected form, which will enable us to appreciate exactly the position Such a stocktaking is necessary from time to time in many matters where public considerations and scientific procedures meet, and the Medical Research Committee were well advised to choose the milk question as one of the first importance to elucidate, so far as researches and experience have gone With this object in view they invited Dr Janet E Lane Claypon, assistant medical inspector under the Local Government Board—who, our readers may remember, made valuable reports upon certain portions of the subject in 1911—to collect all the known materials and to make any comment which her wide experience enabled her serviceably to do It is quite obvious that with the ominous position of infant mortality, when war also is sacrificing lives on a very serious scale, particular attention should be directed to nutritional questions in regard to milk the replies to which may save thousands of infant lives Infant nutrition needs to be more seriously taken in hand than ever before, and it is somewhat of a reproach to our scientific observers that the present state of our knowledge is not more satisfactory We know that infant mortality bears a decided relationship to methods of defective feeding, but we are still in need of more accurate information in combating the waste of life from this cause Physiology, chemistry, bacteriology, and other branches of science have been equally appealed to for assistance, and a certain amount of real practical help has been furnished, but we still lose too many children from what, for want of a better name, we call malnutrition When it is considered that milk is merely an emulsion of fat, associated with proteins, carbohydrate and mineral salts, the constitution of which is definitely known, the physiological chemistry would appear to be simple It is not, however, the chemistry alone of milk that is concerned, for milk is not made in the chemical factory, but is the product of a highly organised mechanism in which so many vital factors are concerned Dr Lane Claypon is inclined to discount any vitalistic theory in regard to the efficiency of natural milk as a constructive in infant feeding Thus in reviewing the subject she refers to the "so called biological properties of milk, to the 'alleged" production of Barlow s disease and rickets by the use of heated milk for infants, and to vitamine theories which give results that are "somewhat fragmentary But she admits that milk contains substances of (at present) unknown composition which are essential for the life of the animal where milk is the sole dietary, adding that there is no evidence to show that these substances are destroyed by boiling, especially when the heat is not applied for prolonged periods and when a temperature not exceeding boiling point is used The loss of vitamine, she says, if it occurs, is evidently not sufficient to affect the nutritive value of milk, "as has been abundantly shown in the preceding chapters" This statement in defence of boiled milk would appear to indicate that Dr Lane Claypon regards the retention of vitamines intact as important and that no objection can be made to boiling inasmuch as this process does not destroy these substances The report threatens to revive the whole controversy of the merits and demerits of boiled milk, in connexion with which, amongst other matters, the facts collected in this volume give valuable evidence It is noteworthy that Dr Lane Claypon dismisses practically all biological influences, so that enzymes or ferments are ruled out as playing any possible rôle in nutrition These conclusions do not on their face appear to harmonise with modern work on the subject of nutrition, nor do they quite fit in with the view that ferments or enzymes are essential as activators in the great nutritive processes Recent observations tend to show that a chemically ideal or physiologically balanced diet does not necessarily nourish its consumer unless there are present certain substances, while it is difficult to believe to take a familiar example, that a hard boiled egg, with its albumin stiffly coagulated, can be dietetically as serviceable as a raw or lightly cooked egg Too much stress, however, cannot be laid on this argument, as one of the first stages in the natural digestion of milk is the coagulation of the caseinogen But research has in fact shown, as we should expect, that from an absorption point of view all is in favour of the raw egg, while boiled milk means that multiple changes take place not only in regard to the albumin of the fluid, but also to its other constituents Boiling as a safeguard against bacterial infection is, of course, sound enough, but it cannot be that milk so treated is chemically, physiologically, or physically the same as the milk direct from the breast Yet, in spite of these considerations, the evidence of practical experience appears to show that certainly in a large number of cases milk does not lose any of its nutritive value by boiling Dr Lane Claypon shows that some children thrive better on raw milk, others on boiled milk, and therefore we must conclude that individuality is a grand factor in the situation

[1] Milk and its Hygienic Relations By Janet E Lane-Claypon M D B.S. Lond Published under the direction of the Medical Research Committee (National Health Insurance) London: Longmans Green and Co 1916 Pp 3 Price 7s 6d net

THE INFLUENCE OF SPINAL ANÆSTHESIA ON BLOOD PRESSURE

SPINAL anæsthesia is not so generally adopted as perhaps it deserves to be owing to the variable and contradictory results obtained, some surgeons having, after repeated trials, abandoned the method In order to ascertain whether spinal anæsthesia has any undesirable effect on the blood pressure in comparison with general anæsthesia by ether and chloroform, Dr Pietro Amaglio made a series of observations which are recorded in *Il Morgagni* (Part 1, No 5, May 31st, 1916) The anæsthetic used was a 5 to 10 per cent solution of novocaine, and observations were made with a Riva Rocci sphygmomanometer on 37 cases It was found that the arterial pressure was sensibly affected in 16 of the cases, in some slightly, not exceeding a diminution of 5 mm and of small duration, returning to normal towards the

end of the operation with the gradual return of sensation, in others the effect was more decided and persistent, a diminution of 15–20 mm requiring injections of infundibulin and camphor to restore it The maximum observed was a diminution of 45 mm In the remaining 21 cases there was no appreciable effect on the arterial blood pressure These results are somewhat different from those of Solaro and Borghi, who recorded a rapid and constant lowering of blood pressure of 10–50 mm These observers, however, used a mixture of stovaine and novocaine From a general point of view, therefore, it may be accepted that spinal anæsthesia by novocaine alone has little influence on the arterial pressure, and that in those cases in which it is affected the lowering is usually transitory, and that when it is persistent the administration of the usual remedies will restore it to normal in a short time, varying from a few hours to a maximum of 24 Dr Amaglio considers that spinal anæsthesia by novocaine merits a more extensive practical application in view of the researches of Dialti and Pozzilli on the influence of ether and chloroform narcosis on the blood pressure, which was decided For whereas in ether narcosis there is a preliminary period of a marked rise in arterial pressure which then returns slowly to normal, chloroform narcosis, on the other hand, produces from the commencement a noticeable lowering, which is sometimes restored after a longer or shorter time, but which at other times persists or becomes so accentuated as to threaten life Ether being in this respect preferable to chloroform, by comparison spinal anæsthesia having very slight influence on the blood pressure should be logically preferable to either

THE CARNEGIE UNITED KINGDOM TRUST AND INFANT AND MATERNAL WELFARE

WE understand that the Carnegie United Kingdom Trust, desirous of obtaining a comprehensive report upon the provision made throughout the country for promoting the physical welfare of mothers and infants, have prepared a schedule containing a large number of questions indicating the scope of the inquiry and the aspects of the subject upon which information is sought Copies of this schedule have been sent to the medical officers of health of the larger sanitary districts, together with a copy of a letter signed by Dr E W Hope, the medical officer of health of Liverpool, requesting that the required information should be sent to him in order that the Carnegie trustees "may be in a position to decide what steps of a practical nature can be taken by them (if any), and generally to assist in the solution of the problems in question" The schedule, which covers the ground in a fairly comprehensive manner, is divided into seven sections Section A contains inquiries into the general sanitary condition of the district Section B concerns itself with the activities of local authorities with special reference to infant and maternal welfare while Section C requires similar information in respect to the activities of voluntary agencies Section D is devoted to the Poor law aspect of the question, Section E to information connected with midwives Section F to education in mothercraft, and under Section G space is provided for general observations by the medical officer of health of the district It is satisfactory to know that the Carnegie trustees are taking a practical interest in the very important subject of infant and maternal welfare, and that they have apparently placed the matter in the hands of Dr Hope in order that he may draw up a report on the matter, but we must, at the same time, express surprise at the manner of conducting the inquiry We should have thought that all the required information would have been in the possession of the Local Government Board, and that it might have been obtained from them direct without troubling medical officers of health to fill up special inquiry forms for the Carnegie trustees giving information which these officers have doubtless already supplied to the central public health authority Medical officers of health have nowadays a very large number of official returns to fill up—some think far too many—and, at the present time, when most of them are short of staff owing to the exigencies of war, it is rather surprising that this additional and, as it seems to us, unnecessary, burden is sought to be placed upon them Dr Hope's letter to the medical officers of health of the districts to which the schedule of inquiry has been sent is vague as to the use to which the Carnegie trustees intend to put the information on infant and maternal welfare once they have got it, and it is unfortunate that he was not a little more explicit on the point This branch of public health work is at present under the control of two Government departments—i e, the Local Government Board and Board of Education—both of which are empowered to make grants of public money to assist in financing local schemes It is to be hoped that the Carnegie trustees do not intend to make an already complicated position more complicated, the proverb of too many cooks spoiling the broth is none the less true because it is trite, and it would be sad if it became applicable to the activities of those who have at heart the welfare of mothers and children in this country

EMPYEMA AFTER PNEUMONIA

PNEUMONIA is without doubt the commonest cause of empyema Empyema is no less one of the commonest sequels of pneumonia. Dr G Nilson[1] has met with 32 cases of empyema among 465 patients treated for pneumonia at the Karlskrona Seamen s Hospital between the years 1903 and 1915, and discusses the treatment of the condition Borelius, describing in 1914 34 cases of metapneumonic empyema met with at Lund found that 12 recovered after a single thoracocentesis and withdrawal of the pleural exudate, while 5 more recovered after repeated pleural puncture the remaining 17 required operation, the removal of a piece of a rib The average durations of these treatments were 37 days 107 days and 52 days respectively, and Borelius came to the conclusion that primary thoracotomy, the resection of a piece of a rib, should therefore be regarded as the normal treatment of such empyemas In describing his own experience Dr Nilson remarks that certain years, such as 1903 1909, and 1915, impress themselves as "pneumonia years in the personnel of the navy, and also as 'empyema years During such years the cases of pneumonia averaged 60 instead of the usual 35 and the percentage developing empyema rose from the average 7 per cent to 11 per cent The empyema declares itself four or five weeks on the average after the beginning of the pneumonia the three earliest

[1] Nordisk med Arkiv Stockholm I [illegible] Kirurgi [illegible] 2

cases occurred 8, 9, and 11 days respectively after the onset Borelius lost 7 out of his 34 cases of empyema, Dr Nilson lost 3 out of his 32, 1 from spread of pneumonia to the other lung, 1 from multiple arthritis and heart failure, and 1 died suddenly during apparent convalescence two months after the operation, death being due to embolism of the pulmonary artery by a clot from the left hypo gastric vein In operating for empyema, Dr Nilson resects four or five inches of rib, and clears out any collections of fibrin he may be able to reach in the cavity Recovery, he finds, takes place in 13 weeks, on the average, but is more rapid in the cases with small collections of pus, and slower in those with large collections Thus in 3 of his 32 patients the amount of pus in the pleural cavity was less than one litre, one patient died, the other two recovered in 7 or 8 weeks In 18 cases the pus amounted to between one and two litres, the average duration of the post-operative treatment was 12 weeks In 9 instances the quantity of the pus was between two and three and a half litres, and the after treatment averaged 16 weeks in length One patient yielded four and a half litres of pus, and was still under treatment 19 weeks later, one patient yielded seven litres, or 12 pints, of pus, and recovered in 24 weeks Dr Nilson's patients were mostly young men aged between 20 and 28, he remarks that 3 died, 2 were still under treatment when he wrote, and that the remaining 27 made good recoveries and did not require any thoracoplastic operations for failure of the lung to expand He concludes that his figures prove the advisability of treating meta pneumonic empyema in adults by primary resection of a rib, while thoracocentesis may prove satisfac tory in the cases of children with small empyemas after pneumonia or with pleural exudates that are almost serous in character

THE INSUFFLATION OF SULPHUR IN THROAT AFFECTIONS

BLOWING flowers of sulphur on to a throat exudation was probably a not unusual remedy among medical men in the past, although on the authority of Professor C G Bäumler[1] it was first recommended by Legauterre in 1866 The proceeding seems to have fallen into disrepute in the metropolis about the time when the first hospitals of the Asylums Board were being opened in the 'seventies" Sulphur although attacked by living protoplasm, is probably quite unaltered by a mucous membrane—Bruce and Dilling state categorically that it remains unaltered in the stomach—and the application partook more of the nature of a rite than of serious treatment, it was akin to placing a stick of solid sulphur in a dog s drinking water which was at one time supposed to protect the animal from eczema. Doubtless the insufflation of sulphur persisted longer outside London and as a popular remedy A letter in THE LANCET of Jan 26th, 1895, compares the efficacy of sulphur and antitoxin in the treatment of diphtheria, concluding in favour of the former and the following issue contained a statement by another correspondent to the effect that sulphur is a most excellent remedy in all ulcerative throat affections Quite recently Sir William Whitla states in the latest edition of his 'Elements of Pharmacy 'Sulphur is a popular local application to the false membrane in diphtheria, either as a gargle or insufflation" It is therefore not altogether surprising to have a tragic reminder of its possible evil consequences in the report of a recent inquest at Newport (Mon) at which medical evidence was given to show that the death of a girl of 9 years was due to asphyxia caused by the presence in the larynx of flowers of sulphur which had been blown there by the girl's mother who had heard of it as a remedy for diphtheria Dr Rees Morgan, who made the post-mortem examination, informs us that the practice in question is still quite common in South Wales and Monmouthshire Some sulphur is shaken on a sheet of paper, which is then rolled up into a tube, one end of which is placed as far as possible down the patient s throat while the operator blows into the other end Now that publicity has been given to the danger of the practice as well as to its uselessness, it will, we hope, die out altogether

[1] On the Use of Sublimed Sulphur as a Local Application in Diphtheria, Brit Med Jour March 3rd 1900 p 450

THE METROPOLITAN WATER-SUPPLY

MARCH, like February, was on the whole a wet month, the mean rainfall at 12 stations which have been selected as giving equal representation for all parts of the Thames basin being 4 58 inches, which is 2 47 inches above the average mean rainfall for this month during the previous 33 years The result was a deterioration of the raw river waters, as judged by the albuminoid nitrogen, per manganate, turbidity, and colour tests Similarly, the filtered waters showed some falling off or showed no change by chemical tests or in regard to colour The filtered waters, however, generally speaking, showed a high standard, and whereas 100 0, 100 0, and 34 8 per cent of the samples of raw Thames, Lee, and New River water respectively contained typical B coli in one cubic centimetre (or less) of water 81 7, 69 6, and 65 5 per cent of the filtered water samples derived from the Thames, Lee, and New River respectively contained no typical B coli even in 100 times as much water—namely, 100 cubic centimetres The efficiency of the storage and filtration processes is thus again made evident and the metropolis enjoys an immunity from water borne disease

HERPES ZOSTER AND VARICELLA

IN the *British Journal of Dermatology* for January-March of this year is an article by Dr F Parkes Weber on two cases of herpes zoster asso ciated with a generalised eruption of varicella like spots From the precis of the literature given by Dr Parkes Weber it can be gathered that such cases are not infrequent and constitute a group of considerable interest and not a little obscurity. The first case is that of a male aged 59, suffering from chronic lymphatic leukæmia, who after a fortnight s treatment with arsacetin developed an eruption of typical herpes zoster over the right shoulder Five days later a generalised but scanty eruption of varicella like spots appeared, they were scattered about the trunk and gradually disappeared without causing any trouble, whereas the zoster was followed by depressed scars covered with dark scabs The second case was a woman aged 60, who de veloped typical herpes zoster in the distribution of the left trigeminal nerve The attack was severe, the herpes soon becoming confluent and partly hæmorrhagic, with much œdema of the whole face The preauricular glands and those along the anterior border of the sternomastoid were very

enlarged and tender After a week a generalised vesicular eruption like varicella, very scattered, appeared over the trunk and extremities It vanished gradually after some two weeks, but the herpes did not disappear completely till some two months had elapsed In some of the recorded instances the so called varicella has preceded the outbreak of the herpes zoster, in others the two have been practically synchronous, while in others still the varicella has been subsequent to the herpes, as in Dr Parkes Weber s cases Were it merely a question of the two conditions occurring thus together or in close relation to each other, the problem would be less baffling than it will be seen to become when the following additional facts are borne in mind In some cases reported by Bokay at the International Medical Congress of 1909 (Budapest) one child in a family developed typical varicella ten days after an eruption of herpes zoster in another child in the same family A considerable number of such cases have been put on record zoster following varicella in different members of the same family or varicella following zoster Further, in some cases of apparently ordinary varicella the rash shows local zoster like grouping of the vesicles, which may be associated with pain Various hypotheses have been put forward to account for these curious phenomena It has been suggested, to begin with, that herpes zoster and varicella are due to identically the same cause or morbid agent, some as yet unrecognised virus or organism If this were so, as Dr Parkes Weber remarks, we should expect to find frequent cases of herpes in varicella epidemics As a matter of clinical fact this association is not found Nor is the association of herpes and varicella in the same individual noted as an occurrence in epidemics of the latter Again, in many cases of herpes of the symptomatic variety it seems possible to exclude the action of any varicella virus, in the sense that the herpes is adequately accounted for otherwise Heim has suggested that the unknown microbe of varicella may under certain as yet obscure conditions give rise to a localised eruption resembling herpes zoster, and that this again may further give rise to a varicella like rash There is, it may be remarked, no *a priori* reason why true herpes zoster and true varicella should not occur more or less simultaneously in the same individual, some, at least, of the reported instances might thus be explained It should be borne in mind, also, that histological evidence shows that the spinal manifestations of herpes zoster, while in part definitely localised, are also diffuse, and it is therefore quite conceivable that in certain cases the rare and scattered varicella like vesicles accompanying an attack of zoster are due to diffusion of the herpetic virus in the nervous system In this connexion the analogy of acute poliomyelitis is instructive, the manifestations of the virus of that disease are diffuse, although it is undoubtedly massed in the ventral cornua Sometimes the virus of poliomyelitis "overflows" and sensory phenomena result, sometimes the postulated virus of herpes overflows and motor phenomena result Perhaps the chief difficulty in the whole question of the possible relation of herpes zoster and varicella is one of interpretation Thus one observer in a case of herpes with generalised eruption said that the eruption "looked like a bad attack of varicella. There is the problem A typical case of herpes zoster and a classical case of varicella occasion no diagnostic hesitation but when varicella is clustered, and when herpes is diffluent or scattered difficulties arise On the margins of the affected segmental cutaneous area or areas in herpes the clinician will not infrequently find more or less isolated vesicles, but these do not embarrass him because of the massing of the rest of the eruption A consideration of the interesting data which Dr Parkes Weber has collected serves to accentuate the feeling that light will be thrown on not a few of the hitherto insufficiently studied exanthemata by research along the lines of their serology and the condition of the cerebro spinal fluid in such cases and that the occasional nervous symptoms and accompaniments of the exanthemata are of greater significance than their rarity leads the observer to suppose

ANNUAL REPORT FOR 1914 OF THE REGISTRAR-GENERAL

BY JOHN F W TATHAM, M A, M D DUB F R C P LOND & IREL, D P H, &c,
LATE SUPERINTENDENT OF STATISTICS GENERAL REGISTER OFFICE

II [1]

Standardised Death rates

IN the reports of the Registrar General issued since the last Census the term "standard death rate" has been substituted for the term "corrected death rate" previously employed in this country This change has been made at the suggestion of Dr Cressy Wilbur, chief statistician to the American Census Bureau, who applied it in the compilation of the Census Bulletins for 1911 In that document reasons are given for the adoption by the Bureau of the population of England and Wales in 1901 as the standard of correction for the death rates Dr Stevenson's arguments in favour of this substitution will be found in the official report for the Census year

In a condensed table in the report for 1914 both the crude and the standardised death rates are stated without reference to age or cause in each of the four groups of geographical areas employed in these reports The rates are also given for the preceding year and for the quinquennium 1906-10 In another table the mortalities are shown of the various sex and age groups from which the standardised rates are calculated and a third table compares the mortality by sex and age in the various classes of area with that of England and Wales generally

As the constitution of the English population in 1914 was less favourable to low mortality than in 1901 standardisation of the death rates on the basis of the latter year slightly reduces the rate of the whole country The effect upon London and the smaller urban districts is insignificant but the mortality of the county boroughs is increased by 3 per cent, whilst that of the rural districts is diminished by 15 per cent, the contrast between them being thus materially increased Outside the metropolis mortality increases generally with urbanisation but the mortality of London is intermediate between that of the county boroughs and that of the smaller urban districts and in the case of females is even lower than that of the urban districts as a whole This is equally true of the four years 1911 14 As in the three preceding years, the proportional as well as the actual excess of male mortality was least in the rural districts and increased with urbanisation to a maximum in London The evidence is therefore consistent that urban conditions tell more severely on males than on females

In a further table comparison is made of the mortality experienced in the North the Midlands and the South of England and in Wales with distinction of sex age and class of area It shows as did similar tables for the three preceding years that the standardised death rates of the north at all ages considerably exceed those of other parts of England Mortality in Wales falls as usual between that of the north and that of the remainder of the country

The detailed abstracts for 1914 which bulk largely in this volume show the causes of death of males and females in the 27 groups of ages for the whole of England and Wales

[1] No I was published in THE LANCET June [illegible] 1915

several geographical divisions The tables in this report are arranged according to the short list of causes adopted by the Registrar General and the Local Government Board These tables are identical in form with the Board s Table III , and are common to the reports of both authorities

Classification of Causes of Death

For many years past attempts have been made in the General Register Office to improve the classification of causes of death Inquiries still continue to be addressed to medical practitioners with the object of eliciting fuller information respecting deaths the causes of which are unsatisfactorily stated in the certificates

Since 1911 similar inquiries have been made to coroners As many indefinite certificates are received regarding deaths that have been investigated by coroners' juries, it has been decided to ascertain whether definite information not embodied in the verdict might be obtained from the medical evidence at the inquest Thanks to the courtesy of coroners, this has been proved to have been so in many instances—deaths certified as due to syncope natural causes, &c , having been referred in the records to official headings on the strength of excerpts furnished from the medical evidence Many years ago similar attempts were made to obtain this information but for reasons which have not been stated those attempts were unsuccessful

In order at once to facilitate inquiries and if possible to diminish their number in future a list of indefinite forms of certificate, with indications of the further information desirable in each case is distributed with the inquiries and is bound up with the books of death certificate forms officially issued. By this means the supplemental information desired in any given case is readily indicated , moreover it has been found that the number of deaths imperfectly certified has fallen appreciably since the list came into use Referring to this topic in a recent report Dr Stevenson quotes a number of instances in which the issue of these inquiries renders it possible to ascertain the meaning attached by practitioners to their use of various conveniently indefinite terms He observes that these are questions in regard to which no assistance can be expected from nomenclatures or from text-books for it is the function of these to discourage, not to define the use of such expressions And even if the meaning rightly attaching to such terms could be laid down by authority this would not necessarily supply the answer to the question which the tabulator must ask himself—viz

What does this expression mean to the man who has used it? This question can only be answered by reply to inquiry directed to the user himself.

Several instances are related of improvement in classification resulting from these inquiries. Thus in many cases originally attributed to tuberculosis the deaths are ultimately classed as due to the pulmonary form of that disease, whilst in other cases indefinitely referred to rheumatism the classification eventually reached is rheumatic fever" Further instances of improvement are indicated in the following statement of deaths registered in 1914 —

Originally Certified	*Finally Classified*
253 from cereb sp men or basal meningitis	116 to cereb sp fev , 51 to tubercular meningitis
203 from fibroid phthisis	121 to pulmonary tuberculosis
376 from cerebral tumour	13 to tub men , 23 to syphilis 35 to cancer
897 from cancer (indefinite)	In 809 cases to part or organ affected
376 from peritonitis	21 to tub perito 67 to appendicitis
298 from syncope heart failure	122 to definite heart disease
1306 from other indefinite causes	In 952 cases classification has been improved

By this system which has been in operation for many years the accuracy of the returns of causes of death is being constantly improved and as the Registrar General is dependent in regard thereto upon the goodwill of medical practitioners Dr Stevenson very properly acknowledges the services thus willingly rendered

Enteric Fever

The loss of life from this disease has been less since the last Census than in any previous period on record The death rate in 1914 was 46 per 1 000 000 In no year before 1905 did the rate stand at less than twice its present amount From a public health view point the significant fall in enteric fever mortality will naturally be claimed as proof of the efficiency of modern sanitation But the fall has been so remarkable as to suggest resort to further investigation The vast experience of the Metropolitan Asylums Board goes to show that amongst the admissions for enteric fever there are a very large proportion of cases which are not really examples of that disease. Again evidence has recently been adduced of the existence of considerable alteration of fashion as regards the nomenclature of typhoid like diseases These considerations should have weight in relation to the present matter

The three counties with highest enteric fever mortality in 1914 were Durham, the West Riding of Yorkshire, and Northumberland, and the three county boroughs were Devonport Wigan, and Hull Durham the county of highest mortality in 1914, was fifth highest in 1912 and 1913, while Devonport the county borough of highest mortality in 1914, was second in the previous year and first in 1912 These figures confirm the conclusion drawn on previous occasions that the maintenance of enteric fever mortality at its present level is largely due to the relatively backward position of a small number of areas

Scarlet Fever

The deaths from this disease in 1914 were equal to a rate of 77 per 1,000 000 at all ages and of 229 per 1,000 000 at ages under 15 years Very remarkable is the decline in mortality from this disease which has taken place during the last half-century Until 1895 no year experienced a mortality less than double that of the year under notice Viewed from the standpoint of the deaths alone it might be thought that the disease was tending to disappear entirely But the notification returns prove that it is still widely prevalent, the diminished mortality corresponding to mildness of type of the disease which contrasts sharply with the type prevailing a generation ago

The towns yielding the highest death-rates from scarlet fever were Preston, Oldham Salford, Warrington, and Middlesbrough and of these Preston, Warrington and Middlesbrough have returned rates above the average for county boroughs in each of the last three years This tendency to persistently higher mortality year after year in the same locality is similar to what obtains in the case of enteric fever, and contrasts strongly with the behaviour of measles and whooping-cough which seldom furnish high rates of mortality for three consecutive years in the same district The explanation doubtless lies in the fact that the proportion of children attacked by scarlet fever is much below the proportion for measles and whooping cough, so that after even a severe outbreak the majority would generally be unprotected by a previous attack This applies still more to enteric fever , whereas a severe outbreak of measles or of whooping cough limits itself by almost exhausting the supply of susceptible children

The fatality of this disease is not given in the present report, but in the year 1912 it amounted to 19 per 1000 cases reported The fatality in London where 94 per cent of all the deaths occurred in hospitals may be compared with the experience of the Metropolitan Asylums Board. During 1912 the fatality in the Board s hospitals was 1 6 per cent of the cases treated as against 1 5 per cent among notified cases treated at home The ratio of hospital deaths per cent of admissions has gradually fallen from 13 1 in 1876-80 to 2 7 per cent in 1906-10 The type of disease in London was mild in 1912 even beyond the average of recent years

Diphtheria and Croup

The deaths thus returned in 1914 correspond to a rate of 160 per 1 000 000 at all ages—the mortality at ages under 15 being equal to 501 per 1 000 000 at those ages Very decided is the effect of standardisation upon the death rate at all ages All the crude diphtheria rates require increase to render them fairly comparable with those of 1901 on account of the diminished proportion of children now living Middlesbrough Great Yarmouth Northampton Devonport and Portsmouth were the towns of highest mortality the last three of them having exceeded the average for each of the last four years The fatality of diphtheria like that of most other infectious diseases of early life decreases rapidly with age In the experience of the Metropolitan Asylums Board during the Census year it decreased from 342 per 1000 admissions under 1 year of age to 22 per 1000 at ages

10–15 The ages at which attack occurs therefore largely influences the fatality In the year 1911 nearly half the deaths from diphtheria and croup occurred in public hospitals

Tuberculosis

The general death rate from tuberculous affections in the aggregate was 1361 per 1,000,000 living, which is less than that of any previous year except 1913 The deaths from that disease were equal to 9 7 per cent of the total deaths The death rate has fallen to this figure notwithstanding a change in the constitution of the population which favours tuberculous mortality Compared with the average rate for 1906–10 the standardised mortality in 1914 shows a reduction of nearly 14 per cent For the population generally and for the male sex tuberculosis mortality varied in the same way with urbanisation, from a maximum in London to a minimum in the rural districts, but a higher mortality for women was recorded in the county boroughs than in London The excess of female mortality in the county boroughs over that in the rural districts was 39 per cent , but for males the excess of the London rate over that of the rural districts was 114 per cent. It is therefore evident that urban conditions of life increase the risk of tubercle much more for males than for females

A PORTABLE FRACTURE BOX

FOR USE IN FIELD AMBULANCES AND FIELD HOSPITALS

BY ST J DUDLEY BUXTON, M R C S , L R C P , B S LOND ,
CAPTAIN R.A.M C

THE field fracture box in the equipment of each section of a field ambulance has been proved by experience to be out of date Its contents have been found unsuitable for the treatment of fractures due to gunshot wounds , plaster of Paris, now little used in field hospitals, adds considerably to the box s total weight of 82 lb It has been customary of late to send up to units large numbers of additional splints, and when field units are stationary this system has not many disadvantages However, in some fighting areas it is necessary for all equipment to be carried on mules, and for these reasons I have collected and put together such splints as I consider most practical in the treatment of gunshot wounds involving bones, so that they can be carried by mule transport

Major E B Waggett, R A.M C (T F), recently made a fracture box which weighed about 60 lb It was suited for those who worked with him, but did not contain several simple appliances which others would look for in a fracture box. The box I am about to describe is much heavier (90 lb) but the weight could at any time be lessened by throwing aside articles which some might consider dispensable under the circumstances in which they were placed This weight is of no disadvantage if the fracture box is conveyed in the medical store cart, and when carried on a mule it can be counter balanced by the medical comfort pannier, carried also in the medical store cart Such a weight of 180 lb in addition to pack saddlery is not the greatest weight some of the pack mules are able to carry

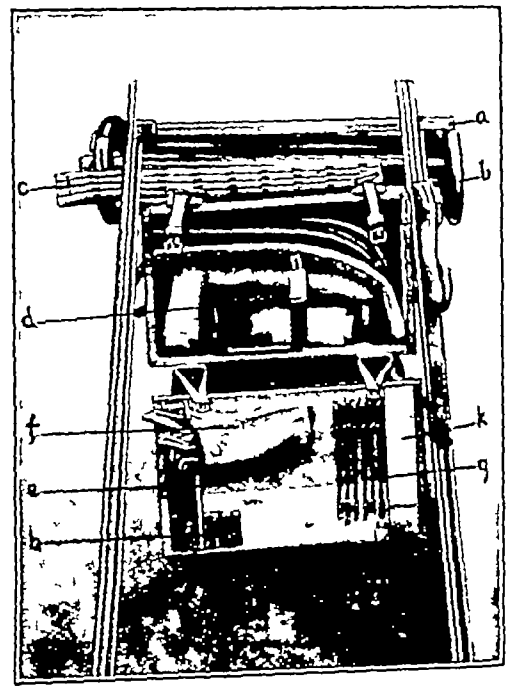
The box was made and fitted in the field ambulance and all splinting and contents are such as can be obtained from a depôt of medical stores The box itself measures 22 by 12 inches, and is 16 inches deep , these are inside measurements It is made of ⅝ inch wood with the ends of ¾-inch wood , it is strengthened by iron girders where the ends and sides are joined, and by wood girders (3 inches broad) 2½ inches from each end. To each wood girder is screwed a 1 inch leather strap and buckle 7 feet 6 inches long This completely encircles the box but is not fixed to the lid, and allows loose splints to be fixed on to the lid Metal rings are attached to the leather for mule transport. A strong handle of thick canvas carpet binding is fastened on each end of the box, to allow of hand carriage

The lid fits tightly but can be removed quickly by canvas loops tacked to it inside which protrude when the lid is in position

On the inside of the lid (see figure) the following are attached 1 An inch rule is painted 2. Bag of tools containing shears (5 inch), saw and cutting pliers (as supplied in field fracture box for aluminium work) hammer and nails 3 Six iron interruptions (7 inch) for long Liston splint and screws 4 Metal slot for bending aluminium strips as in field fracture box 5 List of contents of box

Contents of box (see figure) —Tow, 4 lb , triangular bandages 150, straps and buckles, 60, tape, 2 packets, sand bags (20 inches long), 30, safety pin boxes, 3, old sheet, rubber adhesive plaster (7 inch) tins, 3, (2 inch) rolls, 2

Splinting material —*Aluminium strips, 60-inch lengths 4 18-inch lengths 5, aluminium ribbon rolls, 3, Gooch splinting, roll, 1, assorted, bag, 1, vulcanite fibre, sheets, 3 pasteboard, bag, 1



Showing the fracture box open and the inside of the lid *a* Back splint *b* Thomas s splint *c* aluminium strips *d* plaster adhesive *e* lid *f* tool case; *g* iron interruptions for Liston s splints shown on each side *h* metal slot for aluminium work *i* list of contents

Splints —Arm Angular arm (for internal or external) wood, 4 (N B —These splints can also be used for side splints for leg and foot, one arm being longer than the other), angular arm, wire 3 straight, wire 4, wrist for dorsal flexion of wrist and hyperextension of fingers, iron, 1 Carr's splint, 2

Leg *Thomas's knee splint 3, *long Liston's splint 8 Cline's splint 4 pairs *back splint and foot piece 3

* These splints are too long to go within the box and are fixed beneath the encircling straps

The difficulty of carrying a number of Thomas s knee splints is known by everyone, and this is augmented by a supply of heavy ones There are three with this fracture box but more could be carried if light ones were obtainable Some supplied weigh 7½ lb but this is excessive In places the A O D have made these splints weighing only 2½ lb and of this kind more can be carried The long Liston cannot be dispensed with owing to this difficulty of carrying Thomas s splints and it is made of wood useful for the manufacture of other shorter splints Only 4 lb of tow are included since plenty is carried in a G S pannier For the same reason the number of carpentering tools is limited since screwdriver saw &c are contained in a G S pannier

My thanks are due to Captain G W Harris for the photograph from which the figure is reproduced

PRESENTATION TO A MEDICAL OFFICER —Captain Alexander Findlater R A M C (T) medical officer of the Hendon Union has been presented by the residents in Edgware Stanmore and the district with a purse and an illuminated address in recognition of his having won the D S O for conspicuous gallantry while serving in Gallipoli

ORDER OF THE EXCELLENT CROP —Dr J B Watson has been granted His Majesty s Royal licence to wear the Order of the Excellent Crop of the Sixth Class conferred upon him by the late President of the Republic of China in recognition of valuable services rendered

SCOTLAND

(FROM OUR OWN CORRESPONDENTS)

Scottish Midwives' Association Formed

AT a representative meeting of Scottish midwives held in Edinburgh last week, Dr Laura Stewart Sandeman presiding, it was unanimously approved that an association should be formed called "Scottish Midwives Association," and a committee was appointed to make the initial arrangements

The Edinburgh Medical Guild

The Edinburgh Medical Guild has recently sent to the press for publication the following résumé of the objects which it exists to provide (1) The same free choice of doctor for the insured person as in private practice, (2) freedom from any contract other than the moral obligation of the doctor to his private patient, (3) the same supply and quality of medicines for insured as for private patients, and (4) protection against the abuse which can be made of the corresponding provisions under the present Acts, consisting in wholesale "contracting out" and the formation of medical aid institutes

A Catgut Industry in Edinburgh

A factory has been established in Edinburgh for the manufacture of surgical catgut ligatures The catgut used in this country prior to August 1914 came from Germany and since that date American gut has largely taken its place. The reports as to the quality of the Edinburgh product are encouraging A number of leading Edinburgh surgeons have used it with satisfactory results in the wards of the Royal Infirmary and it is also being supplied to the London and other hospitals The manufacturer states that after extended experiments he has found it impossible to produce from catgut obtained under septic conditions a sterile ligature by means of subsequent medication after the strings have been twisted and dried without to some extent altering the character of the gut and impairing its tensile strength The strength of the chemical solutions which require to be used and the length of time it is necessary to allow the catgut to remain in contact with them cannot be otherwise than detrimental to the ligature. Much of the trouble experienced through irritation in the suture and on account of lack of uniformity of absorption has he considers been due to this non scientific method of preparation of medical ligatures The sterile ligatures are manufactured in Edinburgh from the raw intestines selected from freshly killed animals to the finished article ready for immediate surgical use The director of the Royal College of Physicians laboratory has made a favourable bacteriological report upon it

Dundee Royal Infirmary Annual Report

The annual meeting of the directors of the Dundee Royal Infirmary was held on June 13th, when the yearly report was submitted During the year up to May 15th 4030 patients were admitted to the wards, this with 322 patients remaining from the previous year brought the total of patients treated to 4352 an increase of 42 on the previous year In the maternity department 309 were treated in the wards and 532 at their own homes The cost per occupied bed was £70 19s 1d compared with £69 19s 7d for last year

June 28th

IRELAND

(FROM OUR OWN CORRESPONDENTS)

Irish Medical Association Annual General Meeting

THE annual general meeting of the Irish Medical Association was held on June 21st in the Royal College of Physicians Dr F W Kidd the outgoing President presided at the opening and the chair was subsequently taken by the new President Mr P Marlay Blake Mr Blake in a feeling address on the losses sustained by the Irish medical profession during the past year referred to the recent action of the committee of the association by which the council had been diminished in size and rendered more representative During the year the prolonged struggle with the Insurance Commissioners on the question of certification had been fought with the concession to the profession of the principle for which it had contended—that each medical man should certify for his own patient. There were still many evils to be redressed in the conditions of the Poor law medical service. Up to the present a dispensary medical officer could be awarded a pension only as a favour and not as a right He quoted the recent case of Mr Kelly, of Enniscorthy, who after 33 years' faithful service, was granted a pension of £100, promptly reduced by the board of guardians to £50 a year In spite of such prospects posts in the Poor law medical service were eagerly sought for and while there was competition guardians would continue to think it unnecessary to redress grievances The whole question of Poor-law reform must soon receive the attention of the legislature. A Poor-law and National Insurance committee was appointed on the understanding that its activities should not in any way trespass on the functions of the Irish Medical Committee. Resolutions were carried (1) asking the council to consider the question of Poor-law reform in relation to its medical service so as to be able to formulate the views of the profession when the contemplated legislation on this subject is introduced, and (2) recommending that the principles of the Midwives Acts (England and Scotland) should be embodied in a special Act suitable for and made applicable to Ireland. A further resolution was passed directing the council to coöperate with other medical bodies in Ireland in endeavouring to promote an agreed measure. The meeting terminated with a vote of thanks to the outgoing President

Death of Lieutenant Colonel Patrick J Dempsey M D R U I D L

The death is announced at his residence, Aghadowey, on June 24th, at the age of 63 of Lieutenant-Colonel P J Dempsey J P for the county of Londonderry A native of the Aghadowey district he studied at the Catholic University School of Medicine Dublin, and at Queen's College Belfast graduating M D of the Royal University in 1876 He afterwards obtained a commission in the Royal Army Medical Corps and served for 30 years in India, and also for two years with the Turkish army While in India he was associated with many reforms in hospital work, and in the organisation of the Royal Army Medical Corps

June 28th

UNITED STATES OF AMERICA

(FROM OUR OWN CORRESPONDENT)

The Destruction of Lice

THE best and cheapest way to get men free of lice with the least possible interference with their military duties is to dust them all over with naphthalin after a preliminary cleaning—if we accept the teaching of (Surgeon General) Medical Director H. G Beyer, of the United States Navy who had been working in the Naval Hospital at Hamburg with the German Red Cross Each man's clothes he says are disinfected by steam at low pressure (103°C) for 40 minutes while he has his hair cut off and is given a bath with hot water and soft soap At bed time he wears all his clothes and finely powdered naphthalin is introduced down his neck between his underclothes and skin During his sleep this evaporates and kills the lice, of which always a few survive the cleaning This process is repeated on each of the two following nights and the man is thus cleared of the pest at a cost for naphthalin of 3ths of a penny merely These disinfections have had to be done in Germany on a great scale, one is mentioned in a camp of 25 000 Russian prisoners, in another camp of Russians it was as we know that von Prowazek contracted the typhus fever of which he died

The United States and the Red Cross

The United States warned by the experience of Europe is preparing her Red Cross services as I have before mentioned Ten Red Cross base hospitals are organising to help the army and are being formed in relation with the large civil hospitals which will each of them probably furnish a whole hospital or a section accustomed to work together with doctors male and female nurses clerks cooks &c. and voluntary aid ladies as nurses a dozen Transport sections will be organised probably in relation to the Universities Five small hospitals are to be prepared on the Atlantic coast as auxiliaries to the navy it is announced by the Secretary of the Navy Mr Daniels who is good

enough to take a great interest in the Naval Medical Department He recently told a class of newly joined surgeons that the preparedness of a ship lies just as much in the medical administration as in the administration on the bridge—a novel proposition indeed, still, it cannot but have sent them to their life s work with enthusiasm

An Act to Himself

Either the regular position of an individual medical man is a matter of grave importance to the State, or the maxim "De minimis non curat lex" can scarcely be held to apply in the United States J B enlisted in the United States navy as a bluejacket at the age of 26, and served on for 12 years Leaving that service, he went to college to study medicine and duly qualified He has now joined the Naval Medical Department as an acting assistant surgeon, but as he is over 40 a special Act of Parliament is being passed to regularise his appointment Many Acts have been placed on the statute books of many nations with less reason

As Others See Us

The *Military Surgeon* for May has a letter from a United States surgeon working with the British army He has one bitter complaint, and some thorough going Englishmen may find it justifiable In the United States he was accustomed to steam-heated rooms and he feels very uncomfortable under European conditions "I have not been warm," he says, "since I left the steamer, there is no way to heat these houses, and the English are so fond of this rotten bone seeking cold, that if the little 2 by 4 fireplace is steamed up in the living room, when they enter they say, 'My word! but it is stuffy,' and open go all the doors So I have given up trying to get warm, and am trying instead to get used to the cold."

June 17th

THE SERVICES

ROYAL ARMY MEDICAL CORPS

THE undermentioned are granted temporary rank whilst commanding Field Ambulances —As Lieutenant-Colonels Major M F Grant and Major G A K H Reed As Majors Captain G E Ferguson, Captain T T H Robinson, Captain J W Lane, and Captain A D Fraser

Keith W Monsarrat (Captain, R A M C (T F)) to be temporary Major whilst employed with No 37 General Hospital

Temporary Major Reginald A Farrar relinquishes his commission

Temporary Captains relinquishing their commissions G Blacker N K. Wilson, and D O'C Finigan

Temporary Lieutenants to be temporary Captains A Duncan, F B Chavasse, P J Murphy, J J Field F M Walker, J J Middleton, F J Livingstone, J N Humphrey, G A Varian, H B Graham, A B Bateman, W Ross, A D Clanchy, J T Armstrong J S Webster, A P Bowdler, A W Cochrane M D MacKenzie, T McCririck W F Blewitt, J London, J A MacLaren, J W Hutton A R Green, F J Wheeler, H J MacK Adams A B Brook, T S Rippon, N Tattersall, R P Hadden H E H Tracy, M A Power, W O Brien, H F Willington H D Welply, R J Allsopp, R A H Atkinson H R Smith, S S Ball D T Fraser, W R Hodge, A A Moon, A McK Bell, F W Overholt, C L T Arthur W L Pedlow R Scott L G Tait, G K Allan, J A Mortimer, N A A Hughes P C Garrett, L W Evans, R N Porritt, D W Torrance, R I Douglas, J B Scott, C A Briscoe F W Campbell A L Krough, H McKenzie, M S Esler, F G Gibbs G S A Bishop, E W Anderton J O'D Egan F A Kerr G A Pringle, B Langram, R P Garrow, P G Tuohy, J R Rygate, F G Collins A B Aitken, H Saunders B Hogan, R Rutherford, R D Bridger, T G Stevens, J G Garson, D Tenison D C Thomas J J Gibb W Robinson, H R Evans H McM Donaldson A Vella G Y Richardson, F J Dixon, J Wright F G H Cooke, A Stevenson, J A Wilson H C M McManus L H Bryson, H H Tanner, J Young D Mackinnon W K MacDonald G E Davidson J C Bramwell C W Bond, C S Gideon, J C McWalter O Bruce W L Hay, J L A Grout, A Trower E N Russell A C Sturdy T G S Hodson A Murdoch, W Lanaght J G Scott, A Hallidie H M Rainsford J L Pearce A Cochrane P W Moore R Lewis H G Willis T Herwood C V Cornish G F Lang J R Howitt O de Muth H F H Eberts V D Sharp H C Wert F S Walcott B F Macnaughton I D Ramsay J Russell W W Patton W F MacDonald, F J Brodie G W Whitman, H S Moore A R Thomson, J G F Heal, H M Godfrey N MacDonald, R E Johnston J H Cuthbert M Cohen, H L Burton, J R Davies W B Wamsley L V Lee E Duke, H W Smartt, A Wylie L E Napier C E Harrison J L B Dixon, G B Hillman E L Jenkins J W Darling C H Evers, E D Smith, W Parker, J Mills J E Long T G King, V Gray Maitland, C S Bowker H H Dunmere, E F Clowes A C Greenwood, W M M Jackson J Thomarson, W J D Smyth, H W Sykes, J C Lavetine, F N B Smartt, and F W Matheson

Lieutenant C A Purnell relinquishes his commission on account of ill health

Temporary Lieutenants relinquishing their commissions D P Gaussen, G H V Appleby, F H Wheeler W J V Curtain, D J Cannon, R H Ashwin, E Bayley, J E Hodson, R Broom, E H B Fox W A G Cluffe J E Hewlett, J McAvoy, F Riley D Taylor A MacMillan F G Beatty, K Gillies, M MacLean, A J Wilson, A R Sieveking, W A Milne, G V Worthington, J Anderson N F Rowstron, W L Clements, J M Chambers S L Corry, A E Blackburn, F Anderson, J S R Weir R C de Lacey, R D Mothersole, J St L Kirwan W H Warwick A L Walters, D Allan, A G Shera, J L Gregory, H P Rigby, J F Alexander, J G FitzGerald R Brookes A L Pentland Smith, A H Macklin, V H McWilliams and F J Colling

Temporary Honorary Lieutenants to be temporary Lieutenants A R C Doorley, R M de Mowbray, E L K Sargent, G N Brandon, and W G Marsden

To be temporary Lieutenants J A Paterson, H D Gasteen, E S Molyneux, J B McMorland, F J McCarthy G W Guthrie, G E Chissell, C W Macpherson F R Fraser, H M Gillespie, A E Francis, T G Elsworth, H R Hurter, J MacInnes, R F Williams, J H Paterson J Barrett, S R Hunter, H W Gush, A E Wynne C E Bartlett J L Smith, R J Morgan, A Gaston D C Crole, G de H Dawson, J Whiteside, J W Watthews A J Hawes, G H Sinclair, B Robertson A Smith, R J Wilson, W Sowerby, R MacK Morison J A Gregory J R M Mackenzie R W Davies, W Fletcher, J McD Matheson, A H B Pearce, A Wright E W Toulmin, W B Hendry, S H Scott, J McPolin D Walker, J A Noble, H J Bensted, J Byrne, H B Jones L G Scudamore, P J Lydon, V E Sompure, R M McMinn, L E Price, J P Good, A McD Nevin W McKee J A. Williams, H C Nickson L M Rosten, H E White A Dangerfield H W Hues, W Niccol, J R Heath, F S Machin, B Wood White A A Lees H P Motteram, J H Watson, C G Teall, H H Tipping B J Courtner, D Fisher, C S Glegg R L S Nuthall, H M Sturrock and M Graves

To be temporary Honorary Lieutenant T Jackson

Canadian Army Medical Corps Captains (Canadian Militia) to be temporary Captains E A Robertson, T G Brodie, and A F Foss Lieutenants to be temporary Lieutenants T J Waddell, J N Lyons S Rodin, G B Ferguson, W A Murray E Fidlar, E L Steele, C S Tennant, and I Vandandsigue

SPECIAL RESERVE OF OFFICERS

Royal Army Medical Corps Supplementary to Regular Units or Corps

Major H G Smeeth to be temporary Lieutenant Colonel whilst commanding a Field Ambulance Lieutenant on probation H S Evans is confirmed in his rank

TERRITORIAL FORCE

Royal Army Medical Corps

London Mounted Brigade Field Ambulance Captain W P Thomas to be Major

West Riding Field Ambulance A M Davie late Captain

Highland Field Ambulance To be Captains —Lieutenant T J Costello and Lieutenant F J M Kennedy

Wessex Field Ambulance To be Captains —Lieutenant Colonel) J A Masters relinquishes his temporary rank on alteration in posting Major W J Miles from T F Reserve to be Major and is seconded Captain J J Sandilands relinquishes his commission on account of ill health

South Midland Field Ambulance Major F J Warwick is restored to the establishment

East Anglian Field Ambulance Lieutenant M A Cholmeley to be Captain

London Field Ambulance Major (temporary Lieutenant Colonel) J A Masters relinquishes his temporary rank on alteration in posting Major W J Miles from T F Reserve to be Major and is seconded Captain J J Sandilands relinquishes his commission on account of ill health

Welsh Field Ambulance Captain F L Anderson to be Major

North Midland Casualty Clearing Station Captain F H Brunt to be Major

Highland Field Ambulance A G [illegible] Lieutenant

South Midland Field Ambulance Second Lieutenant G [illegible]

Williams from Unattached List T F to be Lieutenant

Attached to Units other than Medical Corps—Captain H [illegible] Comyn relinquishes his commission on account of ill health

TERRITORIAL FORCE RESERVE

Army Medical Services

Colonel D Harrisson, from Assistant Director of Medical Services West Lancs (Reserve) Division to be Colonel Major W E Miles from a London Field Ambulance, to be Deputy Assistant Director of Medical Services, 1st London Division

BULLETIN OF THE NAVAL MEDICAL ASSOCIATION OF JAPAN

The November, 1915, issue of this bulletin, just received, written in the Japanese character, contains brief abstracts in English Among the contents is an original article by Staff Surgeon B Shinshi on Radium Treatment of Cancer of the Œsophagus, describing the author s experiments on six cases of stricture of the œsophagus caused by cancer In five of the cases the stricture was remarkably benefited, the sixth case ended in death without showing any improvement In the dissection of this latter case it was noticed that the cell group of epithelioma had lost their proper type, and the cancer cells were necrosed The same author also describes his experiences of Abderhalden s dialysation test for the diagnosis of cancer and remarks that according to his experience Abderhalden's dialysation test proved very useful Fleet Surgeon M. Yasawa records his experiences with the diathermy treatment in various diseases, Staff Surgeon S Matsukuma deals with chronic empyema of the maxillary sinus, and Surgeon K. Imai with the application of sensitised vaccine in relation to the mixed protective vaccine of B typhoid paratyphoid A and B The method is this to sensitised living bacilli 0·4 per cent carbolic acid is added, the mixture being put into the incubator (37° C) for 15 hours, which completely kills the living bacilli

VITAL STATISTICS

HEALTH OF ENGLISH TOWNS

In the 96 largest English and Welsh towns with populations exceeding 50,000 persons at the last Census, 8265 births and 4195 deaths were registered during the week ended Saturday, June 24th The annual rate of mortality in these towns which had been 12 5, 12·0 and 12 3 per 1000 in the three preceding weeks further rose in the week under notice to 12 6 per 1000 of their aggregate civil population estimated at 17,312,235 persons for the year 1915 During the first 12 weeks of the quarter just ended the mean annual death rate in these towns averaged 14 5, against 14·0 per 1000 in London Among the several towns the death rate last week ranged from 3 1 in Aberdare 4 3 in Oxford 5·5 in Wallasey, 6 3 in Acton, and 6·9 in Northampton to 17 1 in Norwich and in South Shields 17 2 in Wakefield, 18·6 in Gateshead, 18 8 in Oldham and 23 3 in Tynemouth

The 4195 deaths were 101 in excess of the number recorded in the previous week, and included 244 which were referred to the principal epidemic diseases against 300 and 248 in the two preceding weeks Of these 244 deaths 77 resulted from whooping-cough, 67 from measles 45 from infantile diarrhœal diseases, 27 from diphtheria 15 from scarlet fever and 13 from enteric fever, but no one from small pox. The annual death rate from these diseases did not exceed 0·7 per 1000 and coincided with that recorded in the previous week The deaths attributed to whooping-cough, which had declined from 131 to 76 in the four preceding weeks, numbered 77 and included 13 in London 9 in Birmingham, 8 in Manchester and 3 each in Walthamstow, Southampton Liverpool and Warrington The deaths referred to measles which had been 104 70 and 65 in the three preceding weeks slightly rose to 67 last week 11 deaths occurred in Sheffield 10 in London 6 in Birmingham, and 5 each in West Ham and Liverpool The fatal cases of diarrhœa and enteritis (among infants under 2 years) which had been 58 63 and 52 in the three preceding weeks fell to 45 and included 16 in London and 4 in Sheffield. The deaths attributed to diphtheria which had been 32 52 and 34 in the three preceding weeks further fell to 27 and included 4 each in London and Liverpool, and 2 each in Norwich Birmingham and Preston The deaths referred to scarlet fever which had been 8 9 and 9 in the three preceding weeks rose to 15 of which 3 were registered in Manchester and 2 in Salford The fatal cases of enteric fever which had been 8 and 11 in the three preceding weeks rose to 13 and included 2 each in London Stoke-on Trent and Wigan

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital which had steadily declined from 1775 to 1302 in the 11 preceding weeks numbered 1505 on Saturday last, 171 new cases were admitted during the week against 153 160 and 143 in the three preceding weeks These hospitals also contained on Saturday last 1250 cases of diphtheria 235 of whooping-cough 190 of measles and 35 of enteric fever but no one of small pox. The 1011 deaths from all causes in London were 105 in excess of the number in the previous week, and corresponded to an annual death rate of 12 2 per 1000 The deaths referred to diseases of the respiratory system, which had been 117 130 and 137 in the three preceding weeks, further rose to 157 in the week under notice

Of the 4195 deaths from all causes in the 96 towns, 150 resulted from violence 320 were the subject of coroners' inquests, and 1287 occurred in public institutions The causes of 29, or 0·7 per cent, of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in London and in its 14 suburban districts in Sheffield, Bristol Bradford, Hull and in 59 other smaller towns Of the 29 uncertified causes, 7 were registered in Birmingham, 3 in Liverpool, and 2 each in Southend-on Sea Manchester, and Blackpool

HEALTH OF SCOTCH TOWNS

In the 16 largest Scotch towns with an aggregate population estimated at 2,372,000 persons at the middle of this year, 1156 births and 608 deaths were registered during the week ended Saturday, June 24th The annual rate of mortality in these towns, which had been 14 7 12 9 and 12 2 per 1000 in the three preceding weeks, rose to 13·4 per 1000 in the week under notice During the first 12 weeks of the quarter just ended the mean annual death rate in these towns averaged 15·5, against 14 5 per 1000 in the large English towns Among the several towns the death rate last week ranged from 4 6 in Clydebank, 7·4 in Motherwell, and 9 2 in Falkirk, to 17 1 in Ayr 17 2 in Perth and 18 7 in Hamilton

The 608 deaths from all causes were 53 in excess of the number in the previous week, and included 52 which were referred to the principal epidemic diseases, against numbers declining from 66 to 59 in the four preceding weeks Of these 52 deaths, 19 resulted from measles, 11 from infantile diarrhœal diseases, 9 from diphtheria, 7 from scarlet fever, 4 from whooping-cough and 2 from enteric fever, but not one from small pox. The annual death rate from these diseases was equal to 1 1, against 0 7 per 1000 in the large English towns The deaths attributed to measles, which had been 26, 13, and 17 in the three preceding weeks, rose to 19, and included 14 in Glasgow and 2 in Clydebank. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had been 7 12 and 4 in the three preceding weeks rose to 11, of which 6 occurred in Glasgow The fatal cases of diphtheria which had been 5 6, and 5 in the three preceding weeks, rose to 9, and comprised 5 in Glasgow and 2 each in Edinburgh and Leith The deaths attributed to scarlet fever, which had been 5 10 and 6 in the three preceding weeks, numbered 7, and included 5 in Glasgow The deaths referred to whooping-cough, which had been 10, 9 and 7 in the three preceding weeks further fell to 4 and comprised 2 each in Glasgow and Paisley The fatal cases of enteric fever were registered in Glasgow and Greenock.

The deaths referred to diseases of the respiratory system, which had been 83, 92, and 75 in the three preceding weeks were again 75 in the week under notice and were 17 below the number in the corresponding week of last year The deaths from violence numbered 28, against 20 and 14 in the two preceding weeks

HEALTH OF IRISH TOWNS

In the registration area of Dublin 263 births and 125 deaths were registered during the week ended Saturday, June 24th The annual rate of mortality, which had been 19 3 17 7, and 17 8 per 1000 in the three preceding weeks fell to 15 9 in the week under review, against 12 2 and 14 1 per 1000 in London and Glasgow respectively

Of the 125 deaths at all ages, 15 related to infants under 1 year and 25 to persons aged 65 years and upwards The deaths referred to the principal epidemic diseases numbered 8 and comprised 3 from measles 2 from infantile diarrhœa and 1 each from enteric fever, scarlet fever, and whooping cough

The causes of 6 deaths were uncertified and 3 others were the subject of coroners inquests while 59 or 47 per cent, of the total deaths occurred in public institutions

During the same period 185 births and 103 deaths were registered in the city of Belfast The deaths corresponded to an annual rate of 14·0 or 1 1 per 1000 less than in the previous week, and included 16 of infants under 1 year and 16 of persons aged 65 years and upwards The deaths from the principal epidemic diseases numbered 11 against 9 in the previous week and comprised 4 from infantile diarrhœa, 3 from measles, 2 from whooping-cough and 1 each from enteric fever and scarlet fever One cause of death was uncertified and 1 death was the subject of a coroner s inquest while 32 of the total deaths occurred in public institutions

Correspondence.

"Audi alteram partem"

WOMEN MEDICAL STUDENTS AT KING'S COLLEGE, LONDON

To the Editor of THE LANCET

SIR,—The question of admitting women students in the Medical Faculty at King's College, London, has recently become urgent We are constantly receiving applications from women who desire to study medicine here, but up to the present we have only admitted a few who are studying for the first examination (biology, chemistry, and physics) and a few who are taking physiology only for the second examination Since the amalgamation of King's College for Women with this College we have been in the anomalous position of having opened all our classes to women with the single exception of those held in the anatomy department As we are incorporated in the University of London this is not in harmony with the principles of that University We have been for some time perfectly willing to open the anatomy department to women, but have hesitated to take this step because the hospitals associated with our medical school had refused to take on our women students for clinical instruction St George's Hospital has, however, made a step forward in admitting a limited number of women students to their wards, that experiment has proved such a complete success that we are hopeful that other hospitals will follow their example The University has also brought pressure to bear upon us, and the delegacy of the College has assented to throwing open the whole of our medical department to women students next October In the first instance, however, the number to be admitted will be limited to 20

We are therefore now in the position to offer medical education to that number of women for the preliminary and intermediate portions of the curriculum and we have but little doubt seeing how quickly events are marching at present, that we shall be able to secure later for them the means of completing the final or clinical step of their education

I am, Sir, yours faithfully

W D HALLIBURTON

Dean of Medical Science Faculty King's College London

June 23rd 1916

THE INFECTIOUS CONDITION OF PATIENTS DESQUAMATING AFTER SCARLET FEVER

To the Editor of THE LANCET

SIR,—In view of the opinion now so generally held that there is but little risk of infection in connexion with patients desquamating after an attack of scarlet fever so long as there is no discharge from the nose or ears, the following incident is of interest and importance

On June 3rd Captain H was admitted into Mrs Arnoldi's Hospital for Officers at Roland Gardens He had been discharged from a fever hospital in France as convalescent from scarlet fever He was found to be desquamating very freely on both feet He had no discharge from either nose or ears On June 5th he was admitted to an isolation hospital There were four other officers in the ward to which he had been admitted On June 12th one of these officers sickened with high temperature and general malaise and on the following morning the characteristic rash of scarlet fever appeared The officer had not left his bed for three weeks

There can be no reasonable doubt that this patient contracted the disease from the officer admitted during the stage of desquamation

I am Sir yours faithfully

Green street W June 26th 1916. DONALD W C HOOD

FAT HEADEDNESS

To the Editor of THE LANCET

SIR,—During the past week the two assistants in this laboratory have been called up for service There are some 80 soldiers in the hospital and we are constantly required to examine blood excreta tissues make vaccines and so on But the fat-headed committees cannot be made to see the harm they are doing by taking these men from laboratory work (useful to the soldiers) and turning them into ordinary soldiers

I gather there is no use in appealing, but I hope you'll publish this I am Sir, yours faithfully

R G HEBB

The Laboratory Westminster Hospital, June 27th, 1916

THE EFFECT OF FERRIVINE AND INTRAMINE ON SYPHILIS

To the Editor of THE LANCET

SIR,—Mr J E R McDonagh, in his letter in your issue of June 24th, asks for the chemists who do not understand his chemistry We were thinking chiefly of the remarks made by Professor W M Bayliss, F R S, at the discussion on Mr McDonagh's paper on the Rationale and Practice of Chemo-therapy, which he read before the Dermatological Section of the Royal Society of Medicine on April 13th Professor Bayliss then said *inter alia*, 'I find in the physico-chemical hypothesis much that conveys no definite meaning to me, while the statements appear to be contrary to the knowledge which we possess"

As to the clinical part of our paper, we can only say that our cases were faithfully reported and stand on record for any comparison which may be desired of intramine and ferrivine with other existing remedies We can assure Mr McDonagh that we really did see Sp pallida in the preparations made from our cases which had been treated with intramine and ferrivine for some days No bias on our part could have conjured them into the microscopical field, nor could it have produced the abscesses which occurred in the injection sites of our intramine cases The cases were perfectly straightforward ones and the therapeutic effect of intramine and ferrivine on them was *nil*

Mr McDonagh complains that we have "rushed into print" on a small experience Had the experience been in any way favourable such a complaint would have been justified, but it was not favourable and one cannot continue indefinitely to experiment upon patients with remedies which are founded on what Dr C H Browning at the discussion mentioned above described as "the highly speculative discussions in Mr McDonagh's communication"

If Mr McDonagh includes amongst those who are gaining from intramine and ferrivine "advantages unobtainable with any other existing remedies" a patient whom he showed at a recent meeting of the Dermatological Section of the Royal Society of Medicine, it is good evidence that his clinical observation is not uninfluenced by bias This was a man who, after two months' (patient's statement) treatment with intramine and ferrivine still exhibited active infectious lesions—viz an ulcerated throat and an anal mucous patch

We are Sir yours faithfully

L W HARRISON
C H MILLS

June 26th 1916

"PIRATE" DOCTORS

To the Editor of THE LANCET

SIR,—In THE LANCET of June 17th Mr P Turner again publicly attacks doctors acting as locum tenens and as assistants for demanding a reasonable wage Why? Surely when the wages of other occupations have gone up some by 150 per cent and when the cost of foods, &c has gone up doctors are equally entitled to raise their wage He might as well attempt to argue that those doctors now in the army and who receive £1 £2 or £4 per day and allowances should not ask so much because those of them who hold public appointments still receive the whole or two thirds of the salaries from such posts Let the principals employing assistants or "locums do as others now do—increase their fees No one objects to the resident Poor Law hospital doctors increasing their charges from £120 to £200 No one objects to the fact that many of the leading steamship companies are now giving their surgeons £20 and £22 10s per month and full shore pay for their service I fancy there is too much mawkish sentimentality being [illegible] during this war time This damned [illegible] of doctors fleecing the public should be stopped

I am Sir yours faithfully

ROBERT R [illegible]

Liverpool June 29th 1916

The War.

THE CASUALTY LIST

THE following names of medical officers appear among the casualties announced since our last issue —

Killed

Captain J Parker, R.A.M C, attached to the Somerset Light Infantry

Died

Lieutenant G S Graham, R.A.M.C, graduated M.B, Ch.B at Liverpool University in 1915, and joined the R.A.M C in February this year

THE HONOURS LIST

The following promotions and appointments of and awards to medical officers are announced —

C.B.—Col F W G Gordon Hall, A.M.S Lt. Col. B J W Mawhinny R.A.M.C

C.M.G.—Temp. Hon Maj A. C Valsdier A.M.S

D.S.O.—Maj R. T Brown R.A.M.C Lt.-Col. (temp Col.) A. C E Ke s R.A.M.C Temp Capt W Dawson, R.A.M.C Capt. P F Gow I.M.S Cap W A. Miller R.A.M C., Spec. Res. (attd. 22nd Bn. R. Fus.)

Military Cross—Temp Capt F C Atkinson Fleming R.A.M C (attd. 8th Bn. R Innis Fus) Temp Lt. F K. Marriott R.A.M C (attd. Hdqrs. 182nd Fld. Arty Bde) Temp Capt. C M. Brophy R.A.M.C (attd. 15th Bn. Lond. R, T.F) Capt J A. Cullum, Canadian A.M.C (attd. 23th Infy Bn.) Capt. A. E. Ironside R.A.M.C., 6th Lond. Fd. Ambce. Temo Capt. J M. MacKenzie R.A.M.C. (attd. 6th Bn. North d. Fusiliers T F) Temp Lt C C Oxed, R.A.M.C., No 6 Fld. Ambce. Capt W H Biddell I.M.S Temp. Capt. M Peo R.A.M.C Capt J S Townley R.A.M.C Cap R. S Townsend, I.M S

Second Class of the Indian Order of Merit—Sec. Cl. Senior Assist Surg Bhagwan Singh (attd. 14th Ferozepore Sikhs) I.M.S 1st Cl. Sub. Asst. Surg Ishar Singh, 108th Ind. Fld. Ambce. I.M.S

Indian Distinguished Service Medal.—1st Cl Sub Assist Surg Tika Ram (attd. 122th Ind Fld. Ambce.) I.S.M.D

MENTIONED IN DESPATCHES

The names of the following should be added to those given in THE LANCET of June 24th as having been mentioned in the despatches relative to the operations in Egypt —

Australian and New Zealand Army Medical Corps

Lt.-Col. (temp Col.) H C Maudsley Lt. Col B J Newmarch. V D Lt. Col. J B. McLean Lt. Col. P C. Fenwick Maj C E Maguire Maj F T Bowerbank Capt (temp Maj) T F Brown Capt (temp Maj) D S Mackenzie.

Indian Subordinate Medical Department

Asst. Surg H. F Hogan 1st Class Sub-Asst. Surgs Tiloh Singh. Abter Barrak, Gurdit Singh Narain Singh.

OBITUARY OF THE WAR

HENRY JOHN SULLINGS KIMBELL M R C S ENG,

LIEUTENANT ROYAL ARMY MEDICAL CORPS

Lieutenant H J S Kimbell, who died in London on May 23th at the age of 36 years, entered St Bartholomew s Hospital in 1899 and took his medical qualification in 1907 He then held in succession house appointments at the Bedford County Hospital King Edward VII. Hospital Windsor, the City of London Lying in Hospital the Soho Hospital for Women and the Hospital for Nervous Diseases Welbeck street, with intervals of work as locum tenens in general practice The war came as he was about to start in practice himself and he accepted a commission in the Royal Army Medical Corps. He was attached to Chatham and after serving there for some months was given charge of Preston Hall Maidstone. While there he was [illegible] enough to contract blood poisoning from which he died

A medical colleague writes of Lieutenant Kimbell "Endowed by nature above the average, his kind disposition and perfect manner made him universally popular, while his untiring energy in his work was an inspiration to those with whom he came in contact. Unsparing in service for others he refused to give up his work until the illness which proved fatal was so far advanced that his physical condition was too weak to throw it off. He will be greatly missed by his friends and patients"

MAURICE HENRY DE JERSEY HARPER, M.B B S DURH.,

SURGEON ROYAL NAVY

Surgeon M H de J Harper, who lost his life on H.M.S *Queen Mary* in the naval action of May 31st at the age of 27 years, was the elder son of the late Rev H. B Harper, a chaplain to the navy, and a nephew of Fleet-Surgeon A. F Harper, R.N He was educated at Elizabeth College, Guernsey Pocklington and Trent Schools, entering Durham University, where he took his degree in June, 1914 He was then for a few months assistant medical officer at the Newcastle-on-Tyne City Asylum, Gosforth, leaving in September, 1914 to join the navy His first appointment was at the Royal Naval Barracks, Chatham and then to H.M.S *Thames* for service with the naval ambulance train He joined H M S *Queen Mary* in March, 1916

Surgeon Harper was keen on all forms of sport, he was captain of the Association football team at Durham University and a member of the cricket eleven.

HERBERT LYNE GEOGHEGAN, M D, B CH DUB

FLEET SURGEON ROYAL NAVY

Fleet-Surgeon H L. Geoghegan who was killed in action on H M S *Black Prince* on May 31st at the age of 44 was one of a large family of Irishmen, all of whom are serving their country He went to school at Neuwied in Germany and afterwards studied at Trinity College Dublin where he took his medical degrees in 1896 His service in the navy was hard and varied, for a long time he was in a mine-layer, where his life was one of dreadful anxiety and constant danger In East Africa he had been a big game shooter and presented spoils of the chase to Haslar Hospital Fleet-Surgeon Geoghegan s death will be a great loss to the service A very senior medical officer wrote of him "He was one of the cheerliest of souls and kindest of men, he was also to my certain knowledge one of the very best of our medical officers upon whom it was always safe to place implicit confidence and feel sure that he would never fail in the very tightest of corners We cannot afford to lose officers of this stamp" To this testimony one who knew him intimately since s udent days in Trinity College, Staff-Surgeon J Keogh Murphy adds

"Fleet-Surgeon Geoghegan did not aspire to high professional degrees but wished to know his job, and he did know his job, as I have good reason to know at the Rotunda and elsewhere. He was a man who could be implicitly trusted He was also a man who had a great gift of putting himself out of the case and thinking only of his patient's welfare His personal attributes were extraordinary, always bright, cheery, alert, active, without a defect in his character, most popular, yet never seeking popularity, and absolutely adored by officers and men alike. No one who knew him would fail to realise what he would do in a tight corner, and what a help and comfort he must have been to many in the last moments of his existence" Fleet-Surgeon Geoghegan leaves a widow who is the sister of two senior medical officers in the service

DEATHS AMONG THE SONS OF MEDICAL MEN

The following sons of medical men must be added to our list of those who have fallen during the war —

Lieutenant J D Champneys, Leicestershire Regiment, elder surviving son of Sir Francis H Champneys, of Littlemead, Nutley, Sussex

Lieutenant H R Page, Canadian Infantry, second son of the late Dr D Page, of the Local Government Board, Whitehall

Second Lieutenant W R Elphick, Indian Infantry, eldest son of the late Major H W Elphick, I M S

Major G H Taylor, 39th Garhwal Rifles Indian Army, second son of the late Surgeon Major A Taylor, I M S, Bengal Army

Second Lieutenant E G B Millson Bedfordshire Regiment, only son of Dr G Millson medical officer of health of the Borough of Southwark

Lieutenant H A Llewellyn, South Wales Borderers, son of the late Dr J D Llewellyn, of Bargoed, South Wales

Armourer Corporal J O'D Watson, only son of the late Lieutenant-Colonel J Watson R A M C

AUXILIARY ROYAL ARMY MEDICAL CORPS FUNDS

A meeting was held on Monday last at the Royal Army Medical College, Millbank, presided over by Sir Alfred Keogh, Director General of the Army Medical Staff, to discuss the scheme formulated by a Provisional Committee for the creation of benevolent funds to benefit the auxiliary branches of the Royal Army Medical Corps The scheme was published in substance in THE LANCET last week After some debate it was decided to hold a further meeting in a month's time, more opportunity being thus provided for consideration of the scheme

PHYSICAL TREATMENT FOR DISABLED SOLDIERS —

Major L Haden Guest, R A M C, sends us some notes on the treatment by mechano-therapy at the Hopital Anglais in Nevers, an Anglo-French hospital established under his direction in November, 1914 The treatment is carried out in a separate building by Dr L J Phelan, an American practising in Paris as an expert in applied exercises, movements and massage He employs a minimum of mechanical apparatus of the Zander type and a maximum of use of elastic cord exercisers The latter have the great merit of economy as the cost of the apparatus for the treatment of 100 patients daily need not exceed £200

The apparatus consists of a number of rubber cords and pulleys, and by adapting the position of the patient and the exerciser and by attaching the exerciser either to the hand or foot a very large variety of movements can be obtained Special apparatus can be made for individual finger movements flexion and extension of wrists pronation and supination and so forth The main characteristic of these apparatus is their simplicity Movements of the hip are obtained partly by application of the exerciser to the foot and partly by the use of an inclined plane on which the patient lies The plane is movable on runners placed below it and the patient pushes himself up by pressure with his feet For passive movements of the ankle and knee in cases of great stiffness a mechanical apparatus on the Zander pattern cannot be dispensed with

An analysis of 61 cases taken at random on Jan 3rd 1916 from the cases being treated at Nevers showed foot and leg 38, hand and arm, 22, shoulder, 6, hip 3 Some cases have two injuries or more and these are separately counted Treatment is given daily, with an average duration of ten minutes, but a number of cases can be treated at the same time The length of treatment required by individual cases varies much with the nature of the injury and the condition of the patient but as a rough guide to the duration of treatment the following figures may be given injury of hand one week, wrist, one to two weeks, elbow one month, knee, one month, adhesions (not affecting a joint) two to three weeks At Nevers there have been so far 40 per cent of cures, 40 per cent greatly improved and 20 per cent not benefited The possibility of progress or of cure can usually be discovered in from two days to a week's treatment Cases for treatment should be sent as soon as possible after any open wounds have healed

USE OF THE RED CROSS EMBLEM —The Secretary of the British Red Cross Society has sent us a memorandum (Form D 14) on the use of the red cross, defining, with the approval of the War Office, its employment on uniform placards, and motor cars The essential points are as follows —

The emblem may be properly displayed on the uniform of the personnel of the Society and of recognised Voluntary Aid Detachments on the ambulances and other material including cases of stores and vehicles used solely for the conveyance of such stores on the official notepaper of and other official documents issued by the Society or by its affiliated subordinate branches, and on the badges granted by the Society for proficiency in nursing first aid A On the other hand, the use of the emblem on placards is regarded by the War Office as undesirable and can only be permitted on the understanding that such use is carefully watched and controlled. It must be limited to placards or notices issued by the Society or its affiliated subordinate branches for the purpose of raising funds for the Society Should it be used on placards advertising entertainments bazaars &c the whole of the profits of such entertainments must be devoted in their entirety to the Society In cases where the profits are divided, the emblem must on no account be used The use of the Red Cross emblem in any form on private motor cars is prohibited even when those cars are being used for the conveyance of sick and wounded soldiers Permission can only be given for a private motor-car to carry the emblem if it is used solely for the conveyance of sick and wounded soldiers and has been handed over to the military authorities In such cases written permission from the military authorities is necessary With regard to the use of the Red Cross flag private houses which have been handed over to the military authorities for the reception of sick and wounded soldiers are entitled to fly the flag when written authority for this purpose has been received from the War Office In all cases where the Red Cross flag is flown over such establishments the Union Jack must be flown alongside it.

Chief constables have received instructions on the above lines, and they will bring to notice any irregular uses of the emblem

THE CHILDREN IN BELGIUM —Starvation presses most hardly on the young, and the growing child, if stinted of food, may well grow up permanently enfeebled The children of occupied Belgium are dangerously near the limit between bare necessity and starvation, and Mr John Galsworthy, in an eloquent letter which has been widely circulated, tells us that in the National Relief Committee's view, unless aid comes in much faster than is the case at present the children will starve A special device for raising money to prevent this is that on July 10th all British boys and girls shall hold sports give concerts or entertainments of some sort, the proceeds of which shall go to the children of Belgium The medical profession has already responded generously to the special needs of the Belgian doctors and pharmacists and the appeal for the children will not fall on deaf ears

Sir Thomas Anderson Stuart, Dean of the Faculty of Medicine of the University of Sydney, delivered a lecture on How to Keep Fit' at the Liverpool Military Camp a year ago This has now been reprinted and may be obtained from Mr A J Mullett' government printer Melbourne The lecture contains simple advice called from many sources suitable for the private soldier and of a kind readily understood

Y M C A CONCERTS AT THE FRONT —The work done by the Y M C A in providing wholesome recreation for the fighting man whether at home or abroad is common knowledge Since February 1915 the Ladies Auxiliary Committee under the chairmanship of Princess Victoria of Schleswig Holstein has arranged for a series of concerts in conjunction with the association's huts and there is ample evidence that their labours have been appreciated In 15 months over 2000 concerts have been given a

concert party has gone as far as Malta and the East Music is without question a hygienic agent and one which can be used without stint To enable the concert parties to continue their beneficent work donations are needed and will be acknowledged by the organiser, Miss Lena Ashwell, at 36, Grosvenor street, London, W

Medical News.

SOCIETY OF APOTHECARIES OF LONDON —At examinations held recently the following candidates passed in the subjects indicated —

Surgery —H N Eccles (Sections I and II) Guy's Hospital H Lamb (Sections I. and II) Manchester and Guy's Hospital A. L Malabre (Sections I and II) Washington and M B M Tweed (Sections I and II) Guy s Hospital

Medicine —H Archer (Sections I and II) Bristol R H Chadwick (Sections I and II) Leeds A L. Malabre (Sections I and II) Washington L A. B Moore (Sections I and II) Guy's Hospital E G D Murray (Section II) Cambridge and St Bartholomew's Hospital and A. L Watts (Sections I and II) Oxford and University College Hospital

Forensic Medicine —H. Archer Bristol; C P Barber Charing Cross Hospital A. L Malabre Washington M M Shaffi, London Hospital and A G E Wilcock St George s Hospital

Midwifery —L A. B Moore Guy s Hospital E G D Murray Cambridge and St. Bartholomew's Hospital M M Shaffi London Hospital and L J Vincent Cambridge and St. Mary's Hospital

The diploma of the Society was granted to the following candidates entitling them to practise medicine, surgery and midwifery H Archer, H. N Eccles, E G D Murray and M B M. Tweed

VICTORIA UNIVERSITY OF MANCHESTER —At examinations held recently the following candidates were successful —

Doctor of Medicine —J A. Fairer (with commendation) Francisco da Cunha, D I Dakeyne Lovel Moss and William Stirling jun.

UNIVERSITY OF DURHAM FACULTY OF MEDICINE —At the Convocation held on June 27th the following degrees were conferred —

Doctor of Medicine —T C Storey M B B S (*in absentia*)

Doctor of Medicine for Practitioners of 15 Years Standing —J A. Barnes M R C S L R C P H E C h Murray L R.C P & S L.F P S M H. Smith M A. M R C S L R C P

Bachelor of Medicine (*M B*) —H C Broadhurst Mary Russell Campbell J A Charles H G B Dove, H Evers N A. Martin G N Metzger B A., D O Richards M R C S L R C P W O F Sinclair

Bachelor of Surgery (*B S*) —H C Broadhurst Mary Russell Campbell J A Charles H. Evers R A. Hooper M B N A Martin G N Metzger B A. D O Richards M R C S L R C P

Bachelor of Hygiene (*B Hy*) —J E Baker M D B S

The following received the Diploma in Public Health (D P H) —

J E Baker M D B S

The following received the Licence in Dental Surgery (L D.S) —

G C Adie and W Hall

A PROPOSED PRESENTATION TO SIR LEONARD ROGERS —It is proposed to present to the School of Tropical Medicine in Calcutta a portrait or bust, probably the latter, of Sir Leonard Rogers, in recognition of his untiring labour in obtaining contributions for the new building which is now ready A representative committee consisting of the Hon Surgeon General W R Edwards C B, C M G, Lieutenant Colonel W J Buchanan C I E Lieutenant-Colonel C R M Green, and Dr W Willoughby Kennedy, is in charge of the arrangements £2 has been fixed as the maximum for a subscription, which may be paid to Messrs Thacker, Spink and Co 5 Government place, Calcutta to the credit of the Rogers Portrait Fund The secretary of the fund is Lieutenant Colonel W D Sutherland, I M S

THE HIGHER TRAINING OF MIDWIVES —A meeting of the Council for the Promotion of the Higher Training of Midwives was held under the presidency of the Lord Mayor, on June 27th at the Mansion House The main object of the meeting was to raise money for building a school of midwifery at Woolwich which should be of a national character A site has already been procured and £13,000 collected towards the building fund but another £13 000 are required The work is at present being carried on at the Hospital for Mothers and Babies Woolwich containing 14 beds only The Lord Mayor in opening the meeting said that it was necessary for drastic measures to be taken if child life was to be preserved and the drain on the population caused by the war made up for Lord Balfour of Burleigh said that according to the latest figures for England and Wales (the figures for Scotland were not yet available) about 1 in 10 of those born died under one year Put in another way, there were more deaths among infants than among adults between the ages of 40 and 60 This wastage of life was largely preventable and it was our duty to remedy the evil A majority of the infants who survived suffered in after life from ailments due to lack of proper natal and ante natal attention The two main things required were trained and efficient midwives and adequate accommodation for special cases Lady Betty Balfour said that some kinds of saving were equivalent to reckless extravagance, and no greater extravagance could be conceived than to refuse the £13,000 which were required for a work of such national importance as the saving of infant life If proper maternity homes were provided the infant mortality could be reduced by at least one half Sir Dyce Duckworth, who said that we were far behind some of the continental nations in our measures for conserving infant life, made an earnest plea for the support of the work done by the Council for the Higher Training of Midwives He remarked that a midwife required at least 12 months' training unless she had previously been a nurse Dr Barbara Tchaykovsky and Miss Alice Gregory also addressed the meeting

THE LATE DR C MACGOWAN KITCHING —Dr Charles Macgowan Kitching, a well known medical man in Cape Town, died suddenly while he was conducting an operation at Somerset Hospital, to which he was visiting surgeon, on May 9th, at the age of 52 Dr Kitching was the son of a Cape Town practitioner He was closely associated with the Cape College of Music and with the Chamber Music Union He leaves a widow, who is widely known locally as a vocalist

DONATIONS AND BEQUESTS —Messrs James Howell and Co, Limited, Cardiff, have forwarded a cheque for 500 guineas to the King Edward VII Hospital, Cardiff, in support of Sir William James Thomas's appeal for extensions of the institution

THE Albert Medal of the Royal Society of Arts has been awarded this year to Professor Elie Metchnikoff, of the Pasteur Institute, Paris, in recognition of the value of his inquiries into the nature of immunity The annual report of the society estimated Professor Metchnikoff's discoveries as having contributed more than the work of any other living man to the control of infectious diseases

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS

The Parliamentary Session

THE House of Commons since its reassembling after the Whitsuntide recess has been mainly occupied with finance Several new provisions are being considered for inclusion in the Finance Bill Before a clause authorising new taxation may be included in it a preliminary resolution in Committee of Ways and Means is required Such a resolution has been passed authorising the proposed duty on petrol permits at the rate of 6*d* a gallon, but medical men will pay only half rates One or two other important alterations in the terms of the Finance Bill are being brought forward One of these will affect many professional men who make their savings in the form of endowment policies and deferred annuities There has been an abatement of income tax allowed on account of the premiums on the policies, but the Government now desire to restrict this concession in the case of future policies to those which are spread over not less than 20 years and mature not sooner than when the insured reaches the age of 60 Some alterations have been introduced into the scale of the reduced rates of income tax payable by persons in the naval and military service of the Crown in respect of their pay These give further concessions to the great majority of officers

HOUSE OF COMMONS

TUESDAY, JUNE 20TH

National Health Insurance

Mr CHARLES ROBERTS (who represents the National Health Insurance Commissioners) made a statement in Committee of Supply on the work which had been accomplished by the various commissions He said that their work had been seriously interfered with by the war They could not get funds in the shape of Exchequer grants for new services and fresh developments which might have been contemplated in normal times Their staffs had been depleted by the calls made upon them for military service The war had also brought new problems They had carefully to watch the administration of benefits to soldiers who had been invalided They had to deal with the medical attendance for the dependants of

soldiers A great deal of work had been put into the task of coördinating a sufficiency of doctors for both civilian and army needs There had also been the safeguarding of the national supply of drugs, as to which the Government had charged the department with special powers He ought to remind honourable Members that war conditions made it impossible to deal administratively with a number of questions which were too controversial to touch at the present time For instance, it had often been suggested in the course of the last 12 months that something might be done with regard to sanatorium treatment or with questions connected with the payment of medical men When the whole medical profession was being mobilised for the needs of the army it was out of the question to attempt to revise or consider in any way the terms of the agreement which was originally framed He frankly admitted that during the war period there must be a policy of deliberate marking time That was not, as it was called, a policy of drift He was glad to think that some tightening up of the Regulations had now been carried through The process of consolidating those Regulations, at all events so far as the English Commission was concerned, was now practically complete They were consolidated into codes under separate heads—for instance, Approved Societies, army and navy, collection of contributions, and so on There were some gaps The medical benefit regulations had to be left until the return of peace He hoped in the course of a few weeks to get a volume published which would contain the Act, the Orders, and the Regulations Having dealt with various administrative and financial matters, the honourable gentleman proceeded to say that anyone who knew the work which had been going on in the country knew that since the Act came into force there had been a very considerable progress shown in counties and county boroughs in tackling the great evil of tuberculosis With the money which had been available both through the Insurance Act and by means of what was known as the Hobhouse grant the country had been covered with a network of hospitals sanatoria, and dispensaries, and in connexion with that, by voluntary effort and otherwise, there had been tuberculosis school and care committees set up He did not consider that that process was complete The counties and the county boroughs in a considerable number of cases had fairly comprehensive schemes, but the work, of course, was largely, though not entirely suspended by the war Honourable Members might be interested to know that in this Vote—Vote 9 in the Estimates—there was an addition of £40 000 this year The Insurance Commissioners were concerned not in the question of the provision of buildings, as that was the work of the Local Government Board, but in the question of the treatment of persons, and taking the year 1914, for which alone he had full information, he could give some indications of the measure of the advance The applications for treatment that year increased by 6 per cent The persons treated increased 17 per cent The cases treated in residential institutions increased 69 per cent, and the cases treated in dispensaries increased 232 per cent He had not got full information for 1915 and it was quite impossible at the present time to press insurance committees to give information in detail, but such partial information as he had received pointed in this direction Dispensary treatment in 1915 went up to a very large percentage The treatment in residential institutions dropped by a small percentage, which was not greater than the reduction in the insured population during the year Meanwhile he could assure those who thought that the sanatorium benefit was really drying up that there were vacancies in different parts of the country He was told that in Scotland there was no difficulty in finding room for all the tuberculous soldiers and that there were vacancies in some of the institutions for the civilian population in addition He ought to say something about the tuberculous soldiers who had been treated with special attention The Commissioners had had 3250 cases mentioned to them by the War Office They had an arrangement under a special grant for which money was being taken this year by which they could get priority of treatment for these tuberculous soldiers and he believed treatment had been offered in residential institutions for all those whose cases had been mentioned to them He quite admitted that the Commissioners had not so large a fund as he would like them to have The fund was limited but the need unfortunately was not limited Still under the Insurance Act, since it had come into force a sum of £2,800 000 had been found It had been spent on an attack on tuberculosis by means of sanatorium benefit and so far from that fund drying up insurance committees in 1916–17 would have an income of £760 000 including a grant of £35 000 for tuberculous soldiers When the war was over he hoped to see a still larger expenditure of money in eradicating as far as possible [illegible] from this country He stated that a sum of £[illegible] had been accumulated as a reserve under the National Insurance Act In 1915 men and women received a sum of £5 300 000 in sickness benefit £1 300 000 in maternity benefit and £[illegible] in disablement benefit

THURSDAY, JUNE 22ND

The Sale of Cocaine

Colonel NORTON GRIFFITHS asked the Home Secretary what steps the Government were taking to control the sale of cocaine throughout the country, and whether the sale of this drug could be restricted under the Acts governing the sale of poisons —Mr HERBERT SAMUEL replied The sale of cocaine to members of His Majesty's forces has been made an offence by order of the Army Council under Regulation 40 of the Defence of the Realm Regulations Under the Acts governing the sale of poisons cocaine can only be sold by registered chemists to persons known or introduced to them and after entering in the Poisons Book the particulars required by the schedule to the Act of 1868 I am considering what further action should be taken

Sir J D REES May I ask whether the sale of cocaine has become dangerous since the suppression of opium and whether that point of view will be taken into account?—Mr SAMUEL I do not know that this matter is related to the question of opium, but I am informed that there has been increased use of cocaine among certain chemists

Sir J D REES Will the right honourable gentleman inquire whether it is not a matter of common public knowledge that this has resulted from the suppression of the less dangerous opium?—Mr SAMUEL The class which is addicted to cocaine at the present time is not a class which has ever been addicted to opium

Colonel NORTON GRIFFITHS Do I understand that it is the intention of the Government to take very definite steps to stop the growth of this habit?—Mr SAMUEL We are considering in what way the present law needs strengthening

Sir RICHARD COOPER asked the right honourable gentleman whether his attention had been drawn to the widespread sale of "pick me ups" containing ether and cocaine in West End shops, whether he was aware that the new regulations preventing the sale of cocaine did not affect these draughts which contained coca liquidum, and that these doses were generally responsible for creating the drug craving, and what steps he proposed to take to prevent the spread of this evil —Mr SAMUEL replied I would refer the honourable Member to the reply I have already given The honourable Member appears to have been misinformed as to coca liquidum which, being a preparation of coca, is covered by the recent Order of the Army Council This substance is moreover in Part II of the Schedule to the Poisons and Pharmacy Act 1908, and is therefore subject to the restrictions as to sale laid down in the Poisons and Pharmacy Acts Ether is not a poison within the meaning of those Acts

Non poisonous Dopes

Mr ROWLANDS asked the Under Secretary of State for the Home Department whether he was aware that an inquest was held on May 13th on Annie E Baron who died on May 7th at Bridlington, when the doctor said the illness was due to uræmic poison caused by working in an atmosphere of dope which contained a poison known as tetrachlorethane whether he was aware that on May 17th an inquest was held at Southampton on Annie Metcalf who worked at the Belvedere works on dope varnishing, would he say whether the doctor who made the post mortem examination stated that he thought that the continued breathing of the fumes of the varnish which the deceased used at her work had circulated into the system and had set up jaundice which was the cause of death and if so could he state what further steps were being taken to secure the use of non poisonous dope —Mr BRACE replied I regret that the facts are as stated As I explained on May 11th the arrangements for securing an adequate supply of an approved non poisonous dope were maturing and they will I hope be completed very shortly Meanwhile much is being done to minimise the danger by the use of such other non poisonous dopes as are available and are found suitable by the Admiralty and the War Office and by an increasing observance of the detailed precautions in regard to ventilation periodic medical examination and other matters which have been laid down in the instructions issued by the Factory Department

Mr ROWLANDS Are all non poisonous dopes in the market being utilised at the present time, or are we to have more of these deaths before we arrive at a non poisonous dope?—Mr BRACE All non poisonous dopes which the Admiralty and War Office consider suitable for the purpose are used by them The Admiralty and the War Office are developing as fast as they can a non p[illegible] dope They are doing their be[illegible]

Splints and Surgical Appliances for Soldiers

Major Astor asked the Financial Secretary to the War Office whether the War Office provided for [illegible] going through treatment [illegible] surgical appliances which might be ordered [illegible] in charge of the case —Mr FORSTER [illegible] in reply [illegible] splints and other surgical appliances [illegible] by the officer in charge of a hospital for [illegible]

undergoing treatment in recognised hospitals other than purely private hospitals and those receiving a capitation grant are provided by the War Office

Deafened Soldiers

Mr HOGGE asked the Financial Secretary to the War Office whether there were any special provisions for the treatment of soldiers deafened as a result of active service comparable to those for the blind —Mr FORSTER (in a written answer) replied Such soldiers would receive the regulated disability pensions according to their incapacity, but there are no special provisions similar to those under taken by Sir Arthur Pearson in the case of the blind

MONDAY, JUNE 26TH

Small pox and Vaccination

Major ASTOR asked the President of the Local Government Board how many persons who were notified as having con tracted small pox during April and May had been vaccinated how many had been recently revaccinated, how many had never been vaccinated, and whether any cases were fatal — Mr LONG wrote in reply During the nine weeks ended May 27th, 1916, 79 civil cases of small pox were notified in England and Wales As to 2 of the cases I have not received information as to their vaccinal condition Of the remaining 77 cases, 62 had been vaccinated and 15 were unvaccinated No person contracted small pox subsequent to recent revaccination but 12 of the cases had been revaccinated after exposure to small pox infection and during the incubation period of the disease Seven cases are known to have been fatal, and of these 3 were unvaccinated and 4 were stated to have been vaccinated in infancy, their ages at death being 27, 37, 45 and 63 respectively

Treatment of British Prisoners at Ruhleben

In reply to Mr MALCOLM, Lord ROBERT CECIL (Under Secretary for Foreign Affairs) said On May 31st we received a further report by Dr Taylor on the food supply and nutrition at Ruhleben showing that since Dr Taylor's first report was drawn up a fresh scale of diet had been put in force and that civilians at Ruhleben were receiving only a little more than one third of the protein carrying foods allowed to combatant prisoners of war, while the potato rations of the civilians had been reduced to less than one half of those issued to combatant prisoners On June 3rd we informed the German Government, through the United States Ambassador that if they were not in a position to feed prisoners of war in their hands properly it was clearly their duty to release them We pointed out at the same time that so far from doing so they were detaining persons entitled to repatriation on the ground of ill health and had made no reply to our proposal that civilians over 50 should be repatriated and those over 45 also if unfit for service in the field We pointed out that the German prisoners in our hands were not depen dent on parcels for nourishment We said we were ready to consider any proposals for an exchange of civilians on an extended scale We asked the United States Ambassador to inquire the numbers and if possible the names of the men at Ruhleben who were receiving no parcels On June 8th we asked Mr Gerard to obtain per mission, if possible for us to send at fixed intervals sufficient food in bulk for 500 men As the result of Dr Taylor's report the Prisoners of War Help Committee decided to send parcels for 250 men in addition to those previously sent On June 21st we received a still more unfavourable report by Dr Taylor from which it appears that the German authori ties have deliberately reduced the official food rations at Ruhleben, and that they have accumulated a large sum of money estimated at between 60 000 and 200 000 marks which should have been spent in rations Dr Taylor states that the food supplied during the week ending June 14th, if applied to all the men interned at Ruhleben, represents less than half of the requisite food units and that matters are made worse by the fact that much of the bread coming from outside Germany during the last month is of inferior quality or has arrived in bad condition As the result of this report we addressed a note to Mr Page for communication to the German Government by telegraph recapitulating the observations in our note of June 3rd as to the duty of the German Government to feed the prisoners properly or to release them and as to their failure to reply to our proposals to release civilians over 50 and over 45 in certain conditions and concluding by proposing that all the British civilians at Ruhleben should be released in exchange for a similar number of German civilians and stating that should the German Government not accept this proposal within a week from the receipt by them of the telegraphic summary of this note we should be compelled to consider what course should with regard to the remaining German civilians in our hands We will lay a full statement before Parliament as soon as possible

TUESDAY, JUNE 27TH

Surgeon General Sir W Babtie

Colonel YATE asked the Secretary for India to state for what length of time Surgeon General Sir W Babtie, the Director of Medical Services in India, and the officer stated to have been responsible in regard to medical provision for the expedition to Mesopotamia, was absent from his post during certain months of 1915, and who was appointed to officiate for him during his absence —Mr CHARLES ROBERTS (for Mr CHAMBERLAIN) replied Surgeon General Sir W Babtie left India for a short time early in 1915 to carry out certain work entrusted to him by the War Office He was not replaced during his temporary absence He vacated the appointment of Director of Medical Services in India in June 1915, when he was succeeded by Surgeon General MacNeece I am not aware by what authority General Babtie is stated to have been responsible for the medical arrangements in Mesopotamia, and I would deprecate any such assertion

Callosity and Industrial Disease

Mr FENWICK asked the Home Secretary whether his attention had been called to the industrial disease known as callosity, and, if so, whether, having regard to the nature of the disease, he could see his way to include it in the list of industrial diseases provided for under the provisions of the Workmen's Compensation Act —Mr H SAMUEL answered I am aware that callosity, which is a hardening and thicken ing of the superficial layers of the skin is common, especially on the hands and fingers in certain occupations, but I am advised that it cannot be regarded as a definite disease and does not of itself cause incapacity It could not, therefore, be scheduled under the Act

Medical Men and Petrol Supplies

In the course of the proceedings in committee on the Finance Bill Mr MCKENNA (the Chancellor of the Exchequer) moved a new clause dealing with motor spirit licence duty It lays down that "in addition to any other duties imposed by law in respect to motor spirit there shall be charged, levied, and paid on a licence to be taken out by any person who desires to be supplied with motor spirit a duty at the rate of sixpence for every gallon of motor spirit with which he is authorised to be supplied by the licence" It goes on to provide that "any duly qualified medical practitioner or registered veterinary surgeon using motor spirit for the purpose of supplying motive power to a motor-car or motor-cycle kept by him while it is being used by him for the purposes of his pro fession, shall be entitled, in accordance with regulations made under this section, to an allowance or repayment of half the amount of duty payable under this section in respect of a licence authorising the supply of that motor spirit" In the course of the discussion Mr McKenna said that he must warn motorists not to proceed on journeys when there was danger of their authorised supply of petrol giving out They would not be entitled to purchase anything in excess of the authorised amount Each individual application for a supply of petrol would be judged on its merits

Sir HENRY CRAIK drew attention to the difficulties which might arise when the supply of petrol which a medical man was authorised to purchase became exhausted prematurely Medical attendance in some parts of the country had already been rendered more difficult to afford and it would be very hard indeed that a medical man should be prevented from giving prompt attention to an urgent call because it was not possible for him to obtain a supply of petrol Special permits might well be given to medical men

Mr MCKENNA The observations made by my honourable friend are very much in point The matter will have to be considered by the Petrol Committee and the Board of Trade I think that ought to be brought home to the mind of the Petrol Committee

The new clause was inserted in the Bill

Appointments.

[illegible] *Successful applicants for vacancies, Secretaries of Public Institutions and others possessing information suitable for this column, are invited to forward to* THE LANCET *Office* directed to the Sub-*Editor not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BROWNE C. E. L.R.C.P L.R.C.S Irel. has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Levenwick District of the county of Shetland

GALLOWAY N. L. (final year student) Resident Physician at the Royal Infirmary Edinburgh

HEWDAY G. M.D Certifying Surgeon under the Factory and Workshop Acts for the Olnafirth District of the county of Shetland

HUXLEY FRANCES M. M.D. B.Ch. Vice Dean and Medical Tutor to Queen Charlotte's Lying in Hospital Mary Chesterfield

KIRK A. B (final year student) Resident Surgeon at the Royal Infirmary Edinburgh

SMITH C. (final year student) Resident Physician at the Royal Infirmary Edinburgh

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index)
When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor

ALTON HANTS LORD MAYOR TRELOAR CRIPPLES HOSPITAL.—Assistant Resident Medical Officer
BEDFORD COUNTY HOSPITAL.—Assistant House Surgeon unmarried Salary as arranged with board &c.
BETHNAL GREEN INFIRMARY Waterloo House Waterloo-road N E—Assistant Medical Officer Salary at rate of £280 per annum with board, &c
BIRMINGHAM AND MIDLAND EYE HOSPITAL, Church street.—Resident Surgeon. Salary £200 per annum with board &c
BOLINGBROKE HOSPITAL, Wandsworth Common S W—Resident Medical Officer and House Surgeon Salary £300 per annum and £200 per annum respectively, with board &c
BOLTON INFIRMARY AND DISPENSARY—Female Third House Surgeon Salary £180 per annum with board &c
BRISTOL ROYAL INFIRMARY—House Surgeons and House Physicians Salary at rate of £120 per annum, with board &c
BURY INFIRMARY—Junior House Surgeon Salary £150 per annum with board &c
CAMBERWELL INFIRMARY Brunswick square—Medical Superintendent &c for Institution at Gordon road Peckham and Children's Homes Salary at rate of £750 per annum with unfurnished house &c.
CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL—Senior House Surgeon Salary £250 per annum with board &c.
DUDLEY GUEST HOSPITAL.—Senior Resident Medical Officer Salary £150 per annum with board &c
ESSEX COUNTY COUNCIL.—Temporary Assistant Tuberculosis Officer Salary at rate of £350 per annum &c
EVELINA HOSPITAL FOR SICK CHILDREN Southwark, S E—Clinical Assistants
GREAT YARMOUTH HOSPITAL.—House Surgeon unmarried Salary £200 per annum with board &c
HUDDERSFIELD ROYAL INFIRMARY—Senior House Surgeon Salary £150 per annum with board, &c
HULL, VICTORIA HOSPITAL FOR SICK CHILDREN—Female House Surgeon Salary £100 per annum with board &c
LEAMINGTON SPA WARNEFORD GENERAL HOSPITAL.—Junior Resident Medical Officer Salary £150 per annum with board &c
LONDON TEMPERANCE HOSPITAL, Hampstead road N W—Assistant Resident Medical Officer for six months Salary at rate of £120 per annum with board &c Also Surgical Registrar Salary at rate of 40 guineas per annum
MANCHESTER CITY—Medical Officer Salary £350 per annum
MANCHESTER ROYAL EYE HOSPITAL.—Junior House Surgeon Salary £120 per annum
MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN Park place Cheetham Hill road.—Female House Surgeon Salary £120 per annum with board &c.
METROPOLITAN ASYLUMS BOARD—Temporary Dental Surgeon Salary £350 per annum
NORTHAMPTON GENERAL HOSPITAL—House Surgeon Salary £150 per annum with board &c
PORTSMOUTH WORKHOUSE INFIRMARY WORKHOUSE, AND CHILDREN'S HOME—First Assistant Medical Officer Salary £250 per annum with apartments, rations &c.
PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Physician Salary £150 per annum with board &c.
QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road N W—Assistant Resident Medical Officer for four months and Senior Resident Medical Officer for following four months Salary at rate of £60 per annum first four months and £80 per annum following four months with board &c
QUEEN'S HOSPITAL FOR CHILDREN Hackney road Bethnal Green E.—House Physician for six months Salary £100 per annum with board &c
SHEFFIELD ROYAL INFIRMARY—House Physician Salary £120 per annum with board &c
WEST RIDING OF YORKSHIRE, MIDDLETON IN WHARFEDALE SANATORIUM near Ilkley—Assistant Medical Officer Salary £350 per annum

Births, Marriages, and Deaths.

BIRTHS

BANGAY—On June 26th at Westlands Warblington Hants the wife of Surgeon J D Bangay R N H M S *Antrim* of a son
CANNEY—On June 20th at Bucklan l crescent Hampstead the wife of Major Leigh Canney R.A.M C of a daughter
HAYNES—On June 25th at Borstal Rochester the wife of Captain H G L Hayne R A M C of Markfield Leicestershire of a son

MARRIAGES

HANCE—LEONARD—On June 24th at St Peter's Wolvercote Oxon. Captain J Bennett Hance B A M B B Ch Cantab Indian Medical Service to Catherine Henriette Lawson only child of the late Charles Lester Leonard M A M D of Philadelphia, U S A and of Mrs Leonard of Woodstock road Oxford

DEATHS

CHURCHILL—On June 22nd at Cranley gardens Queen's Gate S W Frederick Churchill M D F R C S., in his 78th year
OSBURN—On May 10th at Mussoorie India, from cerebral apoplexy Harold Burgess Osburn M R C S D P H Camb second son of Captain Francis Osburn R N of Winsley Emsworth Hants in his 39th year

N B—A fee of 7s is charged for the Insertion of Notices of Births Marriages and Deaths

Notes, Short Comments, and Answers to Correspondents.

TREATMENT OF TYPHUS FEVER BY THOROUGH VENTILATION

To the Editor of THE LANCET

SIR—In my Chadwick Lecture on typhus fever in THE LANCET of June 10th (p 1159) it is erroneously implied that Barrault, a Paris physician, was the first to introduce the system of thorough ventilation in the treatment of this disease, whereas the credit of having first advocated this treatment belongs to our distinguished countryman, Professor Sir Clifford Allbutt, who nearly 30 years previously both preached and practised it during the epidemic at Leeds in the year 1865–66

I am, Sir, yours faithfully,
June 28th, 1916 R O MOON

WAR VICTIMS' RELIEF IN FRANCE

THE work of the War Victims' Relief Committee of the Society of Friends in the devastated districts of the Marne and the Meuse continues in spite of the fact that nearly two years have elapsed since the line of the armies moved to any appreciable extent At the maternity at Châlons sur Marne 262 babies were born up to the end of May, and 1152 persons treated in all The convalescent home at Bettancourt-la Longue continues full of girls, many of them brought away from the dangers of the Rheims streets In Bar le Duc the condition of the émigrés requires constant supervision from the nurses of the party For all of these and for work in the villages of the whole district in many of which medical aid of any kind is unobtainable the help of an additional medical man or woman is urgently needed, as will be seen from a notice in our advertisement columns

KAFIR BEER

To the Editor of THE LANCET

SIR—Will you kindly have the accompanying specimen of kafir beer analysed for alcoholic strength and bacteriologically? The beer is made very crudely from a millet larger than that used in India for food It is grown largely here by natives, ground down, fermented and drunk to excess Intoxication lasts for three or four days after being once affected

I have observed the following effects directly attributable to its prolonged use (1) painless enlargement of liver without jaundice (2) early arterio sclerosis of visible arteries, (3) asthenopia with white optic discs (4) early cataract, (5) gastritis and dysentery in old and young respectively, (6) reflexes ultimately in comparatively young people suffer—e g knee jerks I learn that in various parts of South Africa brewers use this kafir corn for making lager beer Lately a black rust has appeared in the corn which may influence the action of the beer

As regards the clinical pathology I do not think I can add to what I have given—I am Sir yours faithfully

WM ROBERTSON

St. Marks Cape Province South Africa May 22nd 1916

*** The sample forwarded was inadequate for a systematic examination and was not even sufficient for the estimation of the alcohol alone Our correspondent might consult one of the local Government analysts The matter is quite interesting enough to have the examination suggested made—ED L

THE DESTRUCTION OF COCKROACHES

To the Editor of THE LANCET

SIR—Dr T J H Holt quite ignores the possibility that cockroaches eat insect powder if free In my experiments many of the younger cockroaches were quite dead and his experiments were so contrived to prove that contact with the powder is not enough to cause that But whether they are dead or not strewing insect powder along the junction of floors and walls has proved in my experience a very cheap and simple way of getting rid of cockroaches I should think if something palatable was mixed with the powder the results would be even more satisfactory Experiments in vitro such as Dr Holt's were are very likely to lead to erroneous conclusions unless the hypothesis suggested by them are tested carefully by other experiments done in a scientific manner a thing which apparently has never even occurred to Dr Holt to do

I am Sir yours faithfully
Sidmouth June 26th 1916 G BUTTE BROWN M D

A GERMAN MEDICAL EDITOR TO HIS CONTRIBUTORS

Dr J Schwalbe, editor of the *Deutsche Medizinische Wochenschrift*, addresses his contributors thus (1916, No 22) I must ask my medical colleagues again further to be patient in regard to the publication of their work It is self evident that the limitation of space due to the war on the one hand and the diminution of the printing staff on the other, must inevitably delay the setting up of the articles This delay affects longer articles more than shorter ones For this reason also contributors should restrict the volume of their MSS as far as possible, and avoid every addition in the way of tables or curves, &c , which is not absolutely necessary " In a similar request to our contributors we are on common ground with the German editor

Veteran —The jurisdiction of the Central Midwives Board is confined to certified midwives and does not extend to persons who are acting as maternity nurses under the direction of a doctor To constitute the offence of "covering an uncertified woman it is of the essence of the offence that she should be acting as a midwife

Medical Examiner of Recruits has omitted to enclose his card

COMMUNICATIONS not noticed in our present issue will receive attention in our next

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c

POST-GRADUATE COLLEGE West London Hospital, Hammersmith, road W

MONDAY —2 P.M. Medical and Surgical Clinics X Rays Mr Gray: Operations Mr B Harman: Diseases of the Eye. Dr Simson: Diseases of Women.

TUESDAY —2 P.M , Medical and Surgical Clinics X Rays Mr Baldwin: Operations Dr Banks Davis: Diseases of the Throat. Nose, and Ear Dr Pernet: Diseases of the Skin.

WEDNESDAY —10 A.M., Dr Saunders: Diseases of Children Dr Banks Davis: Operations of the Throat, Nose and Ear 2 P M., Medical and Surgical Clinics X Rays Mr Pardoe: Operations Dr Simson: Diseases of Women

THURSDAY —2 P.M., Medical and Surgical Clinics X Rays Mr Gray: Operations Mr B Harman: Diseases of the Eye

FRIDAY —10 A.M , Dr Simson: Gynæcological Operations 2 P.M , Medical and Surgical Clinics X Rays Mr Baldwin: Operations Dr Banks Davis: Diseases of the Throat, Nose, and Ear Dr Pernet: Diseases of the Skin

SATURDAY —10 A.M Dr Saunders: Diseases of Children. Dr Banks Davis: Operations of the Throat, Nose and Ear Mr B Harman: Eye Operations 2 P M Medical and Surgical Clinics X Rays Mr Pardoe: Operations

NORTH EAST LONDON POST GRADUATE COLLEGE, Prince of Wales's General Hospital Tottenham N

MONDAY —Clinics:—10.30 A.M Surgical Out-patients (Mr B Gillespie) 2.30 P.M Medical Out-patients (Dr T R Whipham): Gynæcological Out-patients (Dr Banister) 3 P M Medical In patients (Dr R M Leslie)

TUESDAY —2.30 P.M. Surgical Operations (Mr Carson) Clinics:—Medical Out patients (Dr A G Auld); Surgical Out-patients (Mr Howell Evans), Nose Throat and Ear Out-patients (Mr C H Hayton) Radiography (Dr Metcalfe) 3.30 P M , Medical In patients (Dr A J Whiting)

WEDNESDAY —Clinics:—2.30 P.M , Throat Operations (Mr C H Hayton) Children Out patients (Dr T R. Whipham) Eye Out patients (Mr B P Brooks) Skin Out-patients (Dr H W Barber) 5.30 P M., Eye Operations (Mr R P Brooks)

THURSDAY —2.30 P.M Gynæcological Operations (Dr A. B Giles) Clinics:—Medical Out patients (Dr A. J Whiting); Surgical Out patients (Mr Carson) Radiography (Dr Metcalfe) 3 P M , Medical In patients (Dr R M Leslie)

FRIDAY —2.30 P M Surgical Operations (Mr Howell Evans) Clinics:—Medical Out-patients (Dr A G Auld) Surgical Out-patients (Mr B Gillespie) Eye Out patients (Mr R. P Brooks)

THE THROAT HOSPITAL Golden square W

MONDAY —5.15 P M Special Demonstration of Selected Cases
THURSDAY —5 15 P M Clinical Lecture

ROBERT BARNES HALL, 1 Wimpole-street W (by permission of the Royal Society of Medicine)

WEDNESDAY —8 P M Mrs Mary Scharlieb M D: Inherited Disease in Children (illustrated by the epidiascope) (Lecture III)

EDITORIAL NOTICES

It is most important that communications relating to the Editorial business of THE LANCET should be addressed "To the EDITOR" and not in any case to any gentleman who may be supposed to be connected with the editorial staff It is urgently necessary that attention should be given to this notice

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office

Lectures, original articles, and reports should be written on one side of the paper only, *and when accompanied by blocks it is requested that the name of the author, and if possible of the article, should be written on the blocks to facilitate identification*

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication

We cannot prescribe or recommend practitioners

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor"

Letters relating to the publication, sale, and advertising departments of THE LANCET should be addressed "To the Manager"

We cannot undertake to return MSS not used

MANAGER'S NOTICES

THE INDEX AND TITLE-PAGE TO THE LANCET
January to June, 1916

IN view of the Government restrictions upon the supply of paper, and the shortage of paper quite apart from these restrictions, we cannot include, as usual, in all the copies of THE LANCET the Index and the Title-page which are due now These are being prepared, and copies will be supplied gratis to subscribers who intimate their wish to receive them to the Manager, THE LANCET Office, 423, Strand, London, W C Such application should please be sent in at once

TO SUBSCRIBERS

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423 Strand, London, W C , are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c , should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Friday mails to all parts of the world

TO COLONIAL AND FOREIGN SUBSCRIBERS

Subscribers abroad are particularly requested to note the rates of subscriptions given on page 4

The Manager will be pleased to forward copies direct from the Offices to places abroad at the rates shown, whatever be the weight of any of the copies so supplied

NEWSPAPERS FOR NEUTRAL COUNTRIES

Newspapers are not at present being sent forward to neutral European countries unless posted direct from the office of publishers or newsagents who have obtained permission from the War Office for this purpose The Publisher of THE LANCET has obtained the required permission, and he will forward copies direct from the Office to any neutral country on receipt of instructions

METEOROLOGICAL READINGS

(Taken daily at 8.30 a.m. by Steward's Instruments)

THE LANCET Office June 28th 1916

Date	Barometer reduced to Sea Level and 32° F	Direction of Wind	Rainfall.	Solar Radio in Vacuo	Maximum Temp Shade	Min Temp	Wet Bulb	Dry Bulb	Remarks
June 22	30·030	S W		120	69	53	55	59	Cloudy
23	29·870	S W	0·01	101	69	59	59	63	Overcast
2	29·8[illegible]0	S	0·02	121	65	56	56	60	Cloudy
25	29·910	S W		121	71	55	57	64	Cloudy
" 26	29·830	S	0·04	95	64	53	54	57	Cloudy
" 27	29·690	W	0·02	118	67	55	56	58	Cloudy
28	29·720	W		117	65	55	54	55	Cloudy

The following magazines, journals &c. have been received — Pediatrics Archives of Pediatrics Archives de Médecine et de Pharmacie Militaires Pacific Medical Journal Malaria Canadian Journal of Medicine and Surgery Canadian Medical Association Journal American Medicine &c

BOOKS, ETC, RECEIVED

HARE PHARMACY Amherst-street, Calcutta.
Outlines of Medical Jurisprudence. By Rames Chandra Ray L M.S Third edition Price Rs 4

HARPER AND BROTHERS London
Body and Spirit An Inquiry into the Subconscious Based upon 12,000 Experiences in the Author's Practice By John D Quackenbos M D Price 6s net

KHOSLA BROTHERS, Railway road Lahore
Vocabulary of Indian Medicinal Substances and Drugs In more than Five Languages along with their Therapeutic Values Chemistry, and Terminology By C M. Gupta, F T S Price Rs 10.8 0

LUND PERCY HUMPHRIES AND CO London
Surgical Bandages and Dressings By Alice Scott Price 1s 6d

MACDONALD ERSKINE, London
Letters from Another Battlefield Price 1s net
Songs of Protest By Frederick L. Mitchell XXth Century Poetry Series Price 1s net

THACKER, SPINK, AND CO, Calcutta and Simla.
Handbook for Wives and Mothers in India. By Mildred E. Staley M B L.M Second edition Price 5s net

Communications, Letters, &c, have been received from—

A.—Captain C H Attenborough R A.M C Captain H G L. Allford R.A.M C (T) Académie de Médecine Paris, Librarian of Mr G F Aldous, Plymouth Messrs. Allen and Hanburys Lond Dr J Aikman Guernsey Anglo-French Drug Co Lond. Major Edward Archibald, C A M.C

B—Dr W Langdon Brown Lond. Dr G Burton Brown Sidmouth British South Africa Company Lond Chief Clerk of Bedford County Hospital Secretary of, Dr G Blacker Lond. Messrs P B Burgoyne and Co., Lond. Mr J Butterworth Middleton Messrs Brady and Martin Newcastle-on-Tyne Messrs Buchart and Rennet, Aberdeen Dr F M Blumer Stafford; Dr R. Dods Brown Perth Fleet-Surgeon P H Boyden R N Bromley Education Committee Clerk to the; Dr M. Basheer Port Said Staff Surgeon J L Barford, R N Messrs Charles Barker and Sons Lond. Mairie de Bordeaux British Red Cross Society Lond Secretary of Colonel Sir Anthony Bowlby K.C M.G K C V O, Mr M L. Barst, Lond Dr E Chittenden Bridges Lond., Dr R Adams Brewis Dursley Messrs T B Browne, Lond., Captain Andrew Barr A V C Messrs John Bale, Sons, and Danielsson Lond Bolton Infirmary and Dispensary Secretary of Mr H Butterfield Northampton Dr Henry Bazett Lond. Mr J Ellis Barker Lond

C—Mr G H Colt Aberdeen Dr G M Cullen Edinburgh Messrs Cutting and Underwood Lond *Charlotte Medical Journal* Editor of Chesterfield and North Derbyshire Hospital Secretary of, Mr P A. Colmer Yeovil Mr H A Collins Croydon Dr I D Chepmell Worthing Chief Postal Censor, Lond. Dr A Caddy Calcutta, Miss Mary N Cureton, Bournemouth Mrs Helena B Capps Christchurch Mr W E Le Gros Clark Lond Dr A J Chalmers, Khartoum; Mr J Cockcroft Hereford Dr J W Carr Lond City of Westminster War Savings Committee Mayor of

D—Messrs W Dawson and Sons Lond. Lieutenant Colonel C D Dawes I M S Mr A. Denman Lond Dr Downer Lond Dr F W Dobbin Kilmeen Messrs Douglas and Foulis Edinburgh Dr Leonard S Dudgeon Lond

E.—Dr J Elliott Chester Captain H H Elliott, R A M C Mr P O Ellison Lond Essex County Council Chelmsford Medical Officer of Health of

F—4th London General Hospital Registrar of Lieutenant Colonel F L. Fremantle R.A.M C Messrs Fannin and Co Dublin Miss F A Fry Lond

G—Mr Kenneth Goadby Lond Mrs J A Geoghegan Rowlands Castle Dr A Russell Green Birmingham Dr A Greenwood Arrow Lakes B C Captain A D Griffith R.A.M C Mr John Galsworthy Manaton Mr E W H Groves Clifton Mr P C Gibson Plymouth Dr E. A. Gates Stonehouse Mr J H Gibbs Edinburgh

H.—Mr T Mark Havell Lond Fleet-Surgeon A.P Harper R N Lt Col. L W Harrison R.A.M C Lond.; Professor W D Halliburton Lond. The J F Hartz Co, Toronto Messrs A. Heywood and Son Manchester; Messrs Hirschfeld Bros Lond Messrs C J Hewlett and Son, Lond Messrs Heppells Lond Dr John Haddon Denholm Dr Donald M Hood C V O Lond. Dr J C Houston Belfast Mr V Heseltine Lond H S R., Messrs J Heywood Manchester

I.—Dr E C B Ibotson, Corris, Indian Soldiers Fund Lond

J—Mr L Jablonski Paris Jeyes Sanitary Compounds Co, Lond.

K.—Mr C T King Lymington Mrs C W Kimmins Chailey King's College Hospital Medical School Lond. Secretary of Mr G A. Khan Delhi

L.—Dr A. Lewthwaite Bocking Mr H E Littledale, Charing Dr M. Lipinska Lond, Messrs H K Lewis and Co Lond. Mrs M Lambert Parkstone Local Government Board Lond Leeds General Infirmary General Manager of London Hospital Medical College, Secretary of *Lincolnshire Chronicle* Lincoln Publishers of Dr C Leyton Lond

M.—Mr Fred McClure Belfast Maltine Manufacturing Co Lond Mysore Government Bangalore Senior Surgeon of Messrs J Menzies and Co Glasgow Fleet-Surgeon G B Macleod, R.N Surgeon A. C McAllister R N Lond Mundesley Sanatorium Secretary of McGill University Montreal Bursar of Messrs Gordon McDonald and Co, Lond Manchester Corporation, Clerk to the Maruzen Co Tokyo Captain Manuel R.A.M C Dr F Mason Torquay Mr R Martin Ross nowlagh Dr W McGowan Maghera Mrs McCarthy Dublin Major R Tait McKenzie; Dr Irwin Moore Lond Mr C A Morton Clifton Messrs Mable Todd and Co Lond Mr W MacLellan Lond Mr William D Miller Aberdeen "Medical Examiner of Recruits" Manchester Royal Eye Hospital Secretary of Mr Henley H Moyle Henstridge Staff Surgeon J Keogh Murphy R N V R Dr J C McWalter Dublin

N—Dr Nyssens Calais National Food Reform Association Lond. Surgeon F C Freeman R.N

O—Dr W D O Kelly Dublin Dr James Oliver Lond.

P—Dr Eric Pritchard Lond Dr W O Pitt Lond Portsmouth Guardians, Clerk to the Mr F Penny Barnsley Dr R F Priestley Huelva Mr E M Pool Leading Mr John F Punch Cork.

R—Rev R M Pees Epping Dr C L Rayne Lancaster Royal Albert Edward Infirmary Wigan Secretary of Messrs Richardson and Co Lond Messrs Reynolds and Branson Leeds Royal Institute of Public Health Lond. Librarian of Dr J K. Reid, Mortern Royal Albert Institution Lancaster Medical Superintendent of Royal Sanitary Institute Lond Royal Meteorological Society Lond., Assistant Secretary of Royal Society Lond; Messrs. Rutley Son and Vine Lond.; Royal College of Surgeons in Ireland Dublin Assistant Librarian of Royal Faculty of Physicians and Surgeons Glasgow Librarian of Messrs Robertson and Scott Edinburgh, Messrs J Russell and Sons Southsea Dr William Robertson St. Marks Cape Province Royal Meteorological Society Lond Secretary of, Royal College of Physicians of Ireland Dublin; Dr J T Rogerson Mount Rule.

S—Dr G E Shuttleworth Lond Lieutenant-Colonel W D Sutherland I M S Calcutta Captain R N Salaman R A.M C Dr Little Sayer Lond Smith's Advertising Agency Lond.; Messrs G E Stechert and Co Lond.; Mr J B Stobie, Upper Colwall Messrs A. W Shaw Co Lond Captain B G Sworder R A.M.C Messrs Spiers and Pond Lond Lieutenant T S Sastry I M S Mr Arthur C Storry Croydon Sir Thomas Anderson Stuart Sydney South London Hospital for Women Secretary of; Messrs Saward Baker and Co Lond. South African Institute for Medical Research Johannesburg Librarian of Lieutenant E A Scale R.A.M C., St. Bartholomew's Hospital Lond Librarian of Captain J Sidey R.A.M.C South Devon and East Cornwall Hospital, Plymouth Secretary of Mrs A. Smith Brighton

T—Mr A. H Turner Golborne Messrs W Thacker and C Lond; Lieutenant J Scott Taggart R.A.M C Mr J G Thomson Clydebank; Captain S G Tipperton; Mr J H. Thomas Lond

W—Dr M. F Williams, Colwyn Dr J A. Wilson Warrington Messrs Williams and Co, Lond Mr A. Wilson Lond. Messrs J Woodhead and Sons Huddersfield; Mr A. J Walton Lond Warneford General Hospital, Leamington Spa, House Governor of, Dr L. Wilson Chichester; Surgeon C P G Wakeley R N William Pierson Medical Library Association, Grange U S A Mr E Wilkinson Caversham West Riding County Council Wakefield Clerk to the Surgeon D P D Wilkie, R N V R.

Letters, each with enclosure, are also acknowledged from—

A.—Mr E Arnold Lond A A Dr R Ackerley Llandrindod Wells

B.—Mrs Burgess Manchester Mr M M Bainbridge Makerston Mr S N Babington Bedford Dr S L. Bhatia, Lond. Bombay Medical Union Secretary of Surgeon F O Blakiston R.N Mr H Bulton Taunton Dr H Buxton Wallasey; Mr W L Blight Cardiff D. A Dublin Mr W Bryce, Edinburgh B C

C—Messrs Cowie and Co Lond. City of London Sanitary Company C C County Lunatic Asylum Radcliffe on Trent Clerk to the Surgeon F L. Cassell R N Lond; Lieutenant R Craven R A M C Carlisle C H W Mr A Crichton Johannesburg Dr A H Croucher Eastbourne Messrs J and A. Carter Lond. Messrs Condy and Mitchell Lond C L

D—Mr F E H Daunt Lond Dr J H Davies Port Talbot David Lewis Manchester Epileptic Colony Secretary of Dr J Dunlop Glasgow Darlington Hospital Secretary of Dr N H Dastur Udvada Dr E T H Davies Tredegar Devonshire Hospital Buxton Secretary of Dr W Donaldson Flotta.

E.—E E C E M E B L.

F—Dr K. Farag Zeitoun, F H Messrs J Feeney and Co Birmingham F A Mr H M McG Forbes Cumines own

G—Dr W H Gimb t Lond Dr S Gill Formby G K F Sir James Grant Ottawa.

H.—Mr R W Hewson Staff nl Mr H L Hughes Nenbrachen Dee Mr L Hartland Lond. Messrs. J Hallam and Co Lond Dr J Hart Glasgow

J—J E I

K.—Dr C Kirk Scott

L.—Mr J B S Lewis Lond Dr I I Lennin Dr L; Mr T S Logan Serre Captain L Logan Serre Williams R.A.M C France

M—Dr F H M Bore Dr H C Lond D P C Maker Hampstead Brigade Surgeon Lieutenant Colonel Myers Lond., Messrs C Mitchell and Co Lond., Mr A R MacGregor Barton Bradstock Messrs McDougall Bros Manchester Mr T C Maxwell Sierra Leone Messrs Mather and Crowther, Lond Dr P F Murphy Claremorris Messrs J Menzies and Co Edinburgh Medical Society of the County of Kings Brooklyn Treasurer to the Mr N Morris Warrington Dr F W C. Ottawa.

N—North Ormesby Hospital Middlesbrough National Union of Women Suffrage Societies Lond Nottingham General Hospital Secretary of; Mr A. E. Norman Oakham

O—Oxford Eye Hospital Secretary of Mr R. F Owen Leamington

P—Lieutenant Colonel Pratt I M.S India Mr A P Pike Lond; Miss P

R.—Dr M J Ryan Crumlin Reuter's Telegram Co Lond Mr J W Roberts Knayton Mr A Rees Cardiff Messrs A Robertson and Co Lond Mr W C Rivers Barnsley Dr T Robertson Sheffield

S—Dr L H Snell Coventry Dr S Simpson Clyst St D Samuel Leeds Dr Sar Wateringbury; Dr D S Mirzapur; D G S Severs

T—Mr W Thornton Wells Mr I H Tasker Mr F H Taaffe Mr W R K T Lond Dr J M T Harrogate

U—Mrs Edward Lond

V—Vicarage Hinchcombe

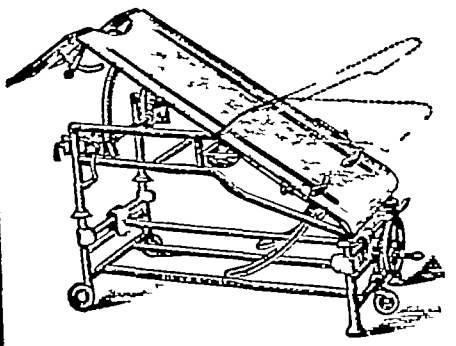
W—Dr A C Warr Lond Mr J I W Messrs W Dr W Mr W Lond Secretary of Messrs Lond Messrs and Son Aberdeen

BAILEY'S HOSPITAL FURNITURE

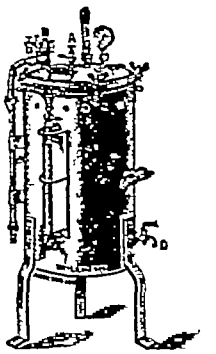
TELEPHONE No 2942 GERRARD. WRITE FOR CATALOGUE TELEGRAMS "BAYLEAF, LONDON"

OPERATION TABLES AND STERILIZERS.

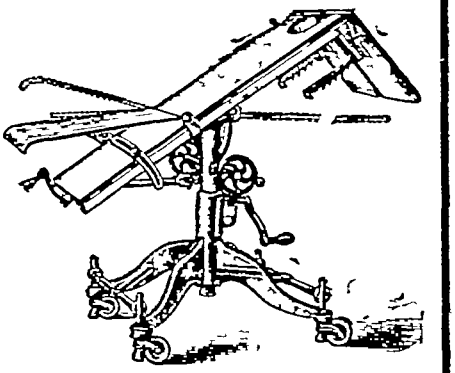
Estimates Given for Emergency Hospitals.



H 3305
Bailey's Special Registered Operation Table
Adjustable in height and positions



H 3617
High Pressure Sterilizer
(5 lb or 228°Fah.)



H 3325
Bailey's General Operation Table
Adjustable in height and all positions
The most compact table made.

BAILEY'S INVALID FURNITURE

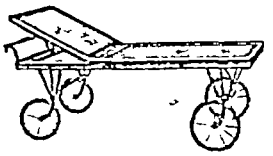


Fig 55
Spinal Couch

Fig 60
Spinal Carriage

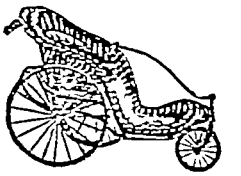


Fig 44
Invalid Carriage.

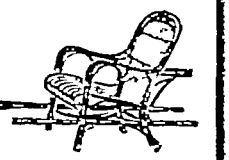
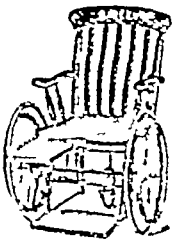
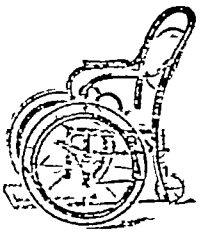


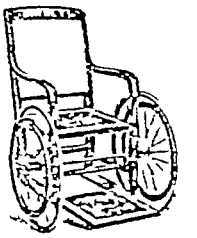
Fig 19
Carrying Chair



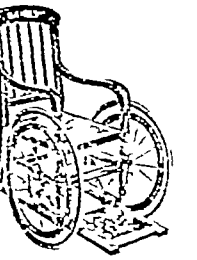
Merlin Chair
Suitable for Military Hospitals
Detachable Leg Rests £4 10 0
Without Leg Rests, £3 17 6



Bentwood Merlin Chair
Cane Seat and Back
Price £4 4 0



Merlin Chair
Cane Seat and Back.
Price £4 2 0



Merlin Chair
Lathe Back Wooden Seat
Price £3 18 0

W. H. BAILEY & SON 38 OXFORD STREET & 2 RATHBONE PLACE London.

First Class Award for Liquors and Liquid Extracts and Pharmaceutical Preparations International Medical Exhibition, London, '81

Battley's Liquors

First Class Award at World's Industrial Exposition, New Orleans, 1885, Bronze Medal, St. Louis, 1904

The following preparations have for many years been used and prescribed by medical men, they are therefore thoroughly recommended both on account of their high therapeutical properties and their great purity as galenical preparations.

Liquor Opii Sedativus (Battley)

Dose 5 to 15 minims.

The Oldest and still the Best Hypnotic and Sedative
Twice the strength of Tinctura Opii B P
Safe in use. No disagreeable after effects
Composition always reliable

Liquor Cinchonæ Cord. (Battley)

Dose 2 to 15 minims.

The most reliable preparation of Cinchona Bark
Contains all the active principles of Yellow Bark
Will remain unaltered for a great length of time being free from starch, etc.

Liquor Cinch. Pallidæ (Battley)

Dose: 2 to 15 minims.

A well known and useful preparation in Malarial Diseases and in Convalescence after Illness
Does not disturb the stomach

Liquor Secalis Cornuti (Battley)

Dose 20 to 60 minims.

Pre-eminent among Ergotic Preparations for Purity and Strength and has proved to be unrivalled in the following therapeutical actions:—As an Emmenagogue and Ecbolic, in Post Partum Hæmorrhage, as a Hæmostatic etc.

Battley's Liquors are issued in 2 oz., 4 oz., 8 oz. and 1 lb bottles.
They are prepared according to the original process of the late Richard Battley

Telegraphic Address "Sedative London" *Sole Manufacturers* *Telephone* Central 2153.

BATTLEY & WATTS, 18 Wellclose Square, LONDON, E

SUBITOL

The product of an Allied Country.

PERFECTLY REPLACES ICHTHYOL.

Medical Men should prescribe SUBITOL.

SAMPLE AND PAMPHLET FREE

CHAS. ZIMMERMANN & CO. (Chemicals), Ltd., 9 & 10, St. Mary-at-Hill, LONDON, E.C.

BRITISH FIRM.

GENUINE

Lysol

"L" BRAND

TRADE MARK

Registered

Made with Caustic Potash. Miscible to a clear bright solution in chloroform, glycerine and alcohol
NON CAUSTIC NON-CORROSIVE.

OUR LYSOL will in future be known as the 'L' brand in order to distinguish it from the many inferior preparations now being offered

Samples of all products can be had direct from the works—

LYSOL LTD., Warton Road, Stratford, E.

Hunterian Lecture

OF

THE DEVELOPMENT OF THE STRUCTURES ASSOCIATED WITH THE ROOF OF THE PRIMITIVE MOUTH

Delivered before the Royal College of Surgeons of England

BY J. ERNEST FRAZER, F.R.C.S. ENG.,

HUNTERIAN PROFESSOR, PROFESSOR OF ANATOMY IN THE UNIVERSITY OF LONDON, LECTURER IN THE MEDICAL SCHOOL OF ST. MARY'S HOSPITAL, ETC.

MR. PRESIDENT, LADIES, AND GENTLEMEN,—The lecture which I have the honour of delivering before you deals with a subject about parts of which a good deal has been written from time to time, for there is an evident pathological importance in the developmental questions concerned, in addition to the purely anatomical interest that centres in their elucidation. The description that I propose to give is based largely on my own observations and it will, I hope, enable you to take into account one or two new points of view in your conception of the roof of the early mouth and its derivatives. I am dealing only with the roof of the common cavity, the cavity is derived from the oral sinus, and this in its turn is a modification of the stomodæum, which will thus provide a convenient starting point for the description.

FIG. 1.

Diagrams of embryonic plates with the amnion cut away round them, its extent being indicated by the dotted line. The plate lies on top of the yolk sac. [illegible] how the [illegible] growing forward in the direction of the arrow, not only projects over the bucco-pharyngeal area, but reverses this and the pericardium [illegible] it. Thus the anterior end of the embryo [illegible] projection in front of the yolk sac [illegible] forward in [illegible] the pericardium [illegible] the level of the membrane [illegible]

THE STOMODÆUM AND ORAL SINUS

The stomodæum is simply the recess or cleft between the overhanging prominence of the forebrain and the pericardium. When the walls of the neural groove begin their rapid growth they tend to bulge forward over their anterior limit and also to carry this margin forward beyond the confines of the embryonic rim, reversing and folding under them the bucco-pharyngeal and pericardial areas of the embryonic plate (Fig. 1). The anterior end of the neural region thus projects beyond the level of the bucco-pharyngeal membrane, turning itself forwards and downwards round its continuity with the upper end of the membrane and so coming to lie above the pericardium [illegible] projecting beyond the level of the membrane [illegible]

the prominence of the pericardium and separated by the bucco-pharyngeal membrane at its base from the foregut or primitive pharynx, a diverticulum of the general archenteric cavity that is included in the interior of the front part of the embryo which projects beyond the embryonic rim.

It is evident that a recess of this nature cannot be looked on as representing an early stage of the mouth of any vertebrate animal possessing jaws, and the stomodæum is really only the place where the mouth will be built up—the frame, as it were, within which the true mouth structures are about to appear. These new structures are to be found at a very early stage, in fact, it is doubtful I think, whether such a simple stomodæum as is shown in the diagram in Fig. 1 is ever really present in the human embryo. Such stages are only known to most of us by description and figures, for the specimens are few in number, and I am not one of the fortunate possessors of them. The earliest human embryo that I possess, after the stage of an embryonic plate, already shows a mandibular arch, although its forebrain is only just projecting over the bucco-pharyngeal area. On other grounds I consider this specimen abnormal, but examination of the records of other embryos tends to confirm me in my suspicions about the existence of a simple stomodæum, at any rate for more than a very brief time and with a very slight depth. The point need not detain us and it will be quite sufficient for us to recognise that the mandibular and maxillary processes, those concerned with the formation of the true mouth, make their appearance on the scene at a very early stage in development.

FIG. 2

Diagrammatic sketch of anterior end of embryo from the right, showing the pharyngeal arches. The mandibular arch is seen joining its fellow above the pericardium, and the maxillary process is growing forward from its upper part. The oral sinus lies between these visceral structures of the two sides.

The mandibular arch, formed in the wall of the primitive pharynx immediately behind the ventro-lateral attachment of the bucco-pharyngeal membrane, grows forward (Fig. 2) on the upper aspect of the pericardium and forms a new floor for the deeper part of the cleft. At the same time the maxillary process extends forward and below the forebrain on each side, it is derived from the upper part of the mandibular arch and thus constitutes a sort of side wall to the deeper portion of the recess. In this way the *oral sinus* comes into existence at present only in the deeper part of the cleft between forebrain and pericardium but destined to enlarge rapidly as its boundaries grow. It is limited below by the mandible and on each side by the maxillary processes and is separated at its base by the bucco-pharyngeal membrane from the cavity of the foregut, this membrane soon breaks down and disappears. Between the two maxillary processes however the central part of the stomodæal cleft still remains, with the posterior part of the forebrain forming its front and upper wall, and this can be taken as the earliest definite indication of Rathke's pouch.

EARLY STAGE IN DEVELOPMENT OF ROOF OF MOUTH

Fig. 3 shows the roof of the mouth in an embryo [illegible] 4 mm. in which the mandibular arch has been [illegible] the region viewed from below. The [illegible] by ectoderm, covers the lower [illegible] on each side the two maxilla[illegible] slight elevations of this [illegible] little distance from the [illegible] mandibular [illegible] ectoderm [illegible] area [illegible]

First Class Award for Liquors and Liquid Extracts and Pharmaceutical Preparations International Medical Exhibition, London, '81

Battley's Liquors

First Class Award at World's Industrial Exposition, New Orleans 1885, Bronze Medal, St. Louis, 1904.

The following preparations have for many years been used and prescribed by medical men, they are therefore thoroughly recommended both on account of their high therapeutical properties and their great purity as galenical preparations

Liquor Opii Sedativus (Battley)

Dose 5 to 15 minims.
The Oldest and still the Best Hypnotic and Sedative
Twice the strength of Tinctura Opii B P
Safe in use. No disagreeable after effects
Composition always reliable

Liquor Cinchonæ Cord. (Battley)

Dose 2 to 15 minims.
The most reliable preparation of Cinchona Bark
Contains all the active principles of Yellow Bark
Will remain unaltered for a great length of time, being free from starch etc.

Liquor Cinch. Pallidæ (Battley)

Dose 2 to 15 minims.
A well known and useful preparation in Malarial Diseases and in Convalescence after Illness
Does not disturb the stomach

Liquor Secalis Cornuti (Battley)

Dose 20 to 60 minims.
Pre-eminent among Ergotic Preparations for Purity and Strength and has proved to be unrivalled in the following therapeutical actions—As an Emmenagogue and Ecbolic, in Post Partum Hæmorrhage, as a Hæmostatic, etc.

Battley's Liquors are issued in 2 oz., 4 oz., 8 oz and 1 lb bottles.
They are prepared according to the original process of the late Richard Battley

Telegraphic Address "Sedative London." *Sole Manufacturers* *Telephone* Central 2183.

BATTLEY & WATTS, 18 Wellclose Square, LONDON, E

SUBITOL

The product of an Allied Country.

PERFECTLY REPLACES ICHTHYOL.

Medical Men should prescribe SUBITOL.

SAMPLE AND PAMPHLET FREE

CHAS. ZIMMERMANN & CO. (Chemicals), Ltd., 9 & 10, St. Mary-at-Hill, LONDON, E.C.

BRITISH FIRM.

GENUINE

Lysol

"L" BRAND

TRADE MARK

Registered

Made with Caustic Potash. Miscible to a clear bright solution in chloroform, glycerine and alcohol
NON CAUSTIC NON CORROSIVE.

OUR LYSOL will in future be known as the 'L' brand in order to distinguish it from the many inferior preparations now being offered

Samples of all products can be had direct from the works—

LYSOL LTD., Warton Road, Stratford, E.

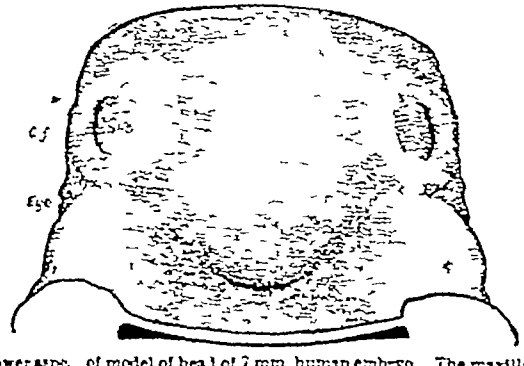
the early embryos In later stages however and in some peripheral parts of the extending stratum, this method of finding and following its limits is not so valuable but here other aids can be often pressed into service Possibly, in the future, one may find more delicate differential staining to be of use in this respect

GENERAL GROWTH OF ROOF AND NASAL CAVITIES

The maxillary growth continues in a forward direction. Fig 5 shows the roof in an embryo of 7 mm., in which Rathke's pouch is still widely open but evidently deeper, and the maxillary processes are better developed and longer coming very near to the olfactory areas These areas are well marked on each side showing slightly raised borders, and the field of observation has extended beyond them so that they no longer look forward but only outward and downward The extension of the field is due to the growth of the telencephalon from the front of the thalamencephalon, and the model shows very clearly that this is a single forward growth with only the very faintest lateral indications of secondary dilatations which will form the cerebral vesicles

The eyes have been carried forward to some extent by the maxillary processes passing below them so that they rest on the front parts of these processes and their stalks form an angle with each other widely open in front The whole optic outgrowth is surrounded by paraxial mesoderm, and the ocular muscles are represented behind and internal to the optic cup as a condensation in the same stratum I imagine that this condensation also includes a very early stage of the ala orbitalis in its inner part, the matter, however, is of subsidiary importance

FIG 5



Lower aspect of model of head of 7 mm human embryo The maxillary processes are better marked and between them the pouch of Rathke is being turned in the paraxial stratum The olfactory areas are evident surrounded by prominent lips A new region in front of their level has been brought into being owing to the growth of the telencephalon

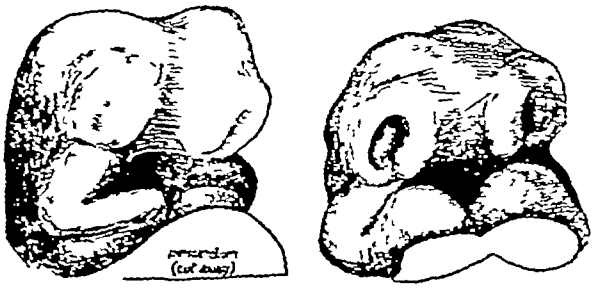
The maxillary process is about to come into relation with the hinder end of the olfactory area and this is beginning to develop marginal lips, though it still retains the oval shape that characterised the earlier area and its floor is still somewhat convex The growth of these lips or nasal folds or processes goes on apace They are thickenings of the paraxial stratum and by rapid deepening on each side of the olfactory area they bury this between them so that the original area on the surface of the roof is now sunk in an olfactory pit of which the side margins are the inner and outer nasal folds respectively These folds can be seen forming in Fig 6 gradually burying the olfactory surface they are curled in front and also but to a very much less extensive degree at their hinder ends The posterior [illegible] though present is even less well marked in the human embryo it may be found in specimens of about 8 mm

When the folds are formed each one even though longer appears shorter than the inner ones owing to the slope on which it is built. The inner folds are connected by an arch even across infra nasal area where the paraxial growth has been much less great than in the folds themselves and where there is consequently a depression on the surface The median folds with the depressed region between them are [illegible] the frontonasal process a convenient term [illegible] relating to the [illegible] central prominence [illegible] the olfactory pit

[illegible]

The maxillary process comes up against the hinder end of the olfactory pit of its own side its mesoderm being applied to the paraxial mesoderm of both inner and outer nasal folds and to the low junction between them. The outer portion of the maxillary mass is evidently growing more rapidly than the rest, marking out a coarse margin to the roof and cavity and constituting the most markedly prominent part of the whole process, the front part of this at first applied more

FIG 6



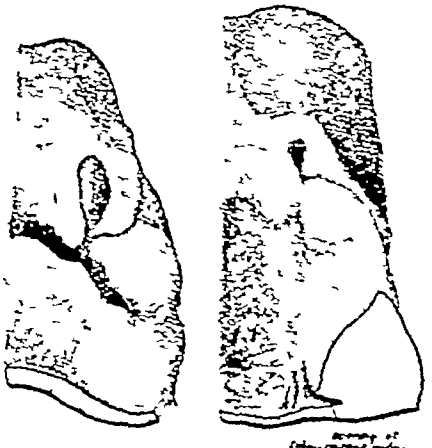
Heads of two mouse embryos from models seen from the front and rather from the right To show the growth of the nasal folds Observe that the maxillary process comes up against the back of the inner as well as the outer fold.

laterally to the outer nasal fold, then passes below it to meet the inner fold which we have seen is at a lower level

This development is shown in Fig 7, taken from embryos of 10 and 12 mm The hinder, outer and lower aspects of the outer nasal fold in its posterior part are thus covered in by maxillary growth, and the corresponding part of the opening of the pit is closed by the extension across it of the maxillary process to reach the inner nasal fold thus forming the "primitive palate" of Dursy But about the same time, sometimes before and sometimes after the growth of the maxillary process across the pit the lips of the two folds themselves meet and fuse, as is visible in both specimens in Fig 7

We see then that the so-called 'primitive palate" is formed mainly by extension of maxillary mesoderm between the outer and inner nasal folds but it also includes, above this, a separate meeting of paraxial mesoderm in these folds

FIG 7

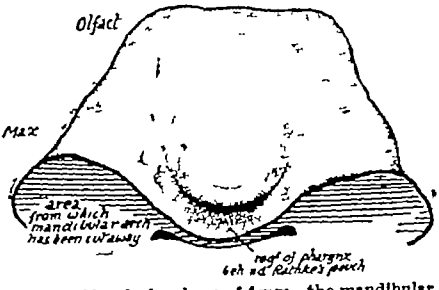


Sagittal sections of the region between the nasal folds and maxillary process as seen in embryos of 10 mm and 12 mm In the model from which the last is drawn the maxillary process has been cut away so that the roof of the mouth cavity is exposed Observe that the two nasal folds come together in their hinder parts and that the maxillary process extends across below this fused area to meet and fuse with the inner and more prominent nasal fold This extension not from the original roof of the mouth but from the prominent inner part of the maxillary process forming the lower part of the nasal fold

themselves At the hinder end of the olfactory pit maxillary mesoderm in relation with the outer fold is continuous with that associated (Fig 7) with the inner fold The latter part of the maxillary extension is not thick like the other but is at first a thin layer covering which lies forward towards the frontonasal process where they meet and are laid over the hinder aspect of this process Thus when the maxillary processes are fused there meets maxillary tissue on

into the floor in the rounded prominence that limits Rathke's pouch in front The optic evaginations are short and widely patent outgrowths from the brain which lie above the maxillary processes, these separating them from the roof as exposed in the figure The ectoderm of the roof and that of the brain are in close contact in the front wall of Rathke's pouch and for some distance on the roof in front of this, but more in front and at the sides they are separated by thin mesoderm, while at the sides further back the maxillary growth is, of course, situated between their levels A little consideration will make it clear that the rounded prominence in front of the pouch is made by that part of the forebrain which was originally the anterior end of the walls of the neural groove (see Fig 1), and the pouch itself is at first merely the angle formed between the bucco pharyngeal membrane and this part of the brain when it turns itself downwards and forwards round the upper end of the membrane, later, when the membrane disappears, the angle is a

FIG 3



Lower aspect of head of embryo of 4 mm, the mandibular arch being removed. From a model

more obtuse one between the brain projection and the roof of the foregut The pouch can, in fact, be considered as marking the level of the original depths of the stomodæum in its central part, and this appears to be a very fixed region The notochord terminates in close relationship to it, it is said in some forms to be connected with the top of the buccopharyngeal membrane. Fixity is indicated by the revolution of the forebrain round the spot, by the close and smooth connexion between neural and surface ectoderm, and by the persistence of the relation with the notochord, and is no doubt increased or helped by the occurrence of the bracket like maxillary growth on each side of its position, extending under the forebrain and holding it in its angled bend

We obtain evidence of fixation, too, in later stages The neural tube in its rapid growth is held in front at this point, and in pushing forward it bends up the relatively thin and loosely held mid brain into the well known flexure behind the point On the other hand, the growth of cerebral structures in front of this point tends, as we shall see later, to rotate the forebrain up somewhat round an axis passing through this region In the adult skull, moreover, in ways which we need not pause now to consider, there has come about a peripheral divergence of regions, such as the orbit and the tubo-tympanic complex, but centrally they are more fixed and the pituitary fossa seems to lie practically at the centre from which they may be said to radiate Shortly, I think it is justifiable to describe the region of Rathke's pouch as the most fixed spot in the developing head a fact which will help us to appreciate the changes that go on around it, changes of position which may be said in a general way to become more marked according as they are distant from this spot

MESODERM OF ROOF

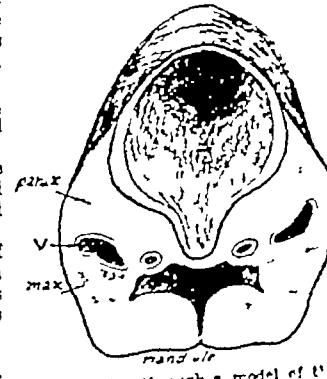
A forebrain turning over the fixed point (as in Fig 1) to project forwards necessarily carries with it a mesodermal covering derived from and continuous with that in relation with the neural groove or tube of which it is an extension—that is the forebrain has a covering of paraxial mesoderm belonging properly to it In the roof of the mouth as already pointed out this covering is at first deficient centrally Perhaps this is explicable on the view that the middle line here is a direct continuation of the mid-dorsal line of the tube, the line of closure and of neuropores and the place where the tube is last covered by the middle layer The bare area in the roof does not exist for long, the paraxial mesoderm extends into it from the sides so that in a 5 mm embryo it is already smaller, in one of 7 mm it is not very much more than coextensive with the front wall of the pouch, and after this as we shall see later the cells invade this region from the sides, and ultimately effect the separation between the pouch and the brain

When the maxillary process grows forward a new mesodermal stratum is added, derived from the lateral mesoderm, and this is applied to the superficial surface of the paraxial stratum In its further extension it covers this surface, except in the pouch and apparently the two mesodermal strata do not mix Only these two strata are concerned in forming the tissues lying between the mouth and the brain, and certain definite structures are formed in each layer I lay some stress on this double mesodermal origin because it seems to me that many intricate questions—such as those concerning the comparative relationships between the parts of widely different skulls—might be brought much nearer solution if attention were paid to the nature of the layers in which the tissues are formed By pushing the inquiry back into developmental stages, workers such as Parker and, to-day, Fawcett in this country, and Levi, Gaupp, and others elsewhere, have brought our information as to the comparative anatomy of the skull to a very high level But the tendency has been to restrict these observations to the chondrocranium, whereas it seems to me that it might with advantage be extended back to the prechondral mesenchyme, and the results checked by the recognition of the strata and of the relations in the strata and between them, the chondrocranium is a structure already made, while the other line of research would throw the inquiry back into its making

It was my original intention to deal in this lecture with some comparative work on these lines, following up certain observations I had made which seemed to be full of promise, but the circumstances of the present are in many ways unfavourable to such work, so I am constrained to confine myself to the human subject The distinction between the two mesoderms is perhaps more marked in lower types than in the human embryo Fig 4 shows a section near the region of the pouch in a young mouse embryo, the distinction between the strata is as marked in the section as in the diagram Perhaps if we could command the freshness of our human material as we can the other we would find the distinction as definite

But there are other ways of fixing the levels of the strata The large vein and the artery (Fig 4) lie practically on the maxillary mesoderm, really embedded in the superficial layers of the paraxial stratum This relation seems to be a constant one in mammals and birds—so far, at least, as I have had opportunities of investigating the matter The artery is the internal carotid, it runs forward in this mesodermal relation from the region of the third visceral arch to the side of Rathke's pouch where it sinks into the paraxial mesoderm to reach the brain The vein is a large channel lying in contact with the inner aspect of the Gasserian ganglion (not shown in this section) and passing back between this and the seventh nerve to lie to the outer side of this last, it is the vena capitis mesialis of Sal[illegible] description more loosely referred to as the continuation of the vena capitis lateralis by some other writers I hope it will avoid ambiguity if we term it with Streeter the primary head vein All the structures described in this region from the paraxial mesoderm lie above the [illegible] also do the nerves going to the paraxial structures while those formed in the maxillary stratum lie below them

FIG 4



From a section through a model of the head of a young mouse embryo, showing the mesodermal layers

A vascular plexus is carried forward from the vessels on the [illegible] of the advancing maxillary mesoderm and enables [illegible] to find the edge of the growth in the early stages [illegible] much trouble these vessels are indicated in the [illegible]

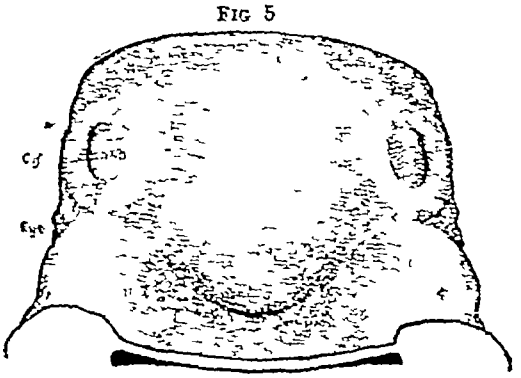
the early embryos In later stages however, and in some peripheral parts of the extending stratum this method of finding and following its limits is not so valuable but here other aids can be often pressed into service Possibly, in the future, one may find more delicate differential staining to be of use in this respect

GENERAL GROWTH OF ROOF AND NASAL CAVITIES

The maxillary growth continues in a forward direction. Fig 5 shows the roof in an embryo[1] of 7 mm, in which Rathke's pouch is still widely open but evidently deeper, and the maxillary processes are better developed and longer, coming very near to the olfactory areas These areas are well marked on each side, showing slightly raised borders and the field of observation has extended beyond them so that they no longer look forward but only outward and downward The extension of the field is due to the growth of the telencephalon from the front of the thalamencephalon and the model shows very clearly that this is a single forward growth, with only the very faintest lateral indications of secondary dilatations which will form the cerebral vesicles

The eyes have been carried forward to some extent by the maxillary processes passing below them, so that they rest on the front parts of these processes and their stalks form an angle with each other widely open in front The whole optic outgrowth is surrounded by paraxial mesoderm and the ocular muscles are represented behind and internal to the optic cup as a condensation in the same stratum I imagine that this condensation also includes a very early stage of the ala orbitalis in its inner part, the matter however, is of subsidiary importance

FIG 5



Lower aspect of model of head of 7 mm. human embryo The maxillary processes are better marked and between them the pouch of Rathke is being buried in the paraxial stratum The olfactory areas are evident surrounded by prominent lips A new region in front of their level has been brought into being owing to the growth of the telencephalon

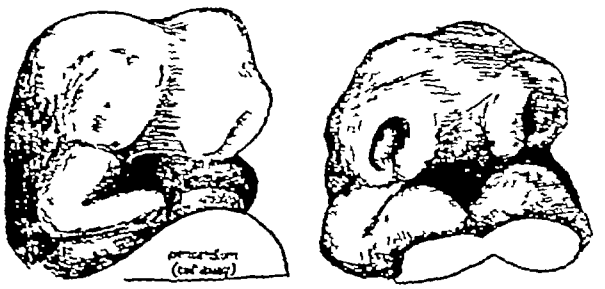
The maxillary process is about to come into relation with the hinder end of the olfactory area and this is beginning to develop marginal lips, though it still retains the oval shape that characterised the earlier area, and its floor is still somewhat convex The growth of these lips or nasal folds or processes goes on apace They are thickenings of the paraxial stratum and by rapid deepening on each side of the olfactory area they bury this between them so that the original area on the surface of the roof is now sunk in an "olfactory pit" of which the side margins are the inner and outer nasal folds respectively These folds can be seen forming in Fig 6 gradually burying the olfactory surface they are united in front and also but to a very much less extensive degree at their hinder ends The posterior junction though present is even less well marked in the human embryo it may be found in specimens of about 8 mm

When the folds are formed each outer one though longer appears shorter than the inner ones owing to the slope on which they are built The inner folds are connected by an intervening infra-nasal area where the paraxial growth has been rather less vigorous than in the folds themselves and where there is consequently a depression on the surface The two inner folds with the depressed region between them [illegible] the fronto-nasal process—a convenient term [illegible] when referring to the whole central prominence [illegible] the olfactory pits

[illegible]

The maxillary process comes up against the hinder end of the olfactory pit of its own side its mesoderm being applied to the paraxial mesoderm of both inner and outer nasal folds and to the low junction between them The outer portion of the maxillary mass is evidently growing more rapidly than the rest, marking out a coarse margin to the roof and cavity, and constituting the most markedly prominent part of the whole process, the front part of this, at first applied more

FIG 6



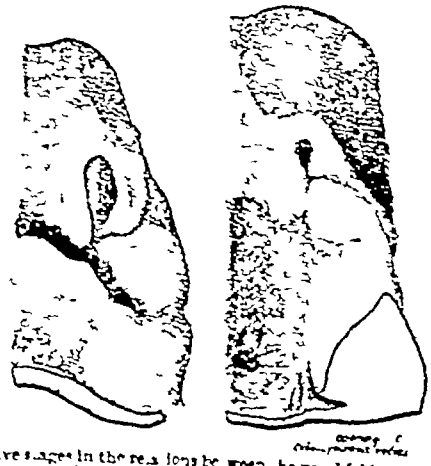
Heads of two mouse embryos from models seen from the front and rather from the right To show the growth of the nasal folds Observe that the maxillary process comes up against the back of the inner as well as the outer fold

laterally to the outer nasal fold, then passes below it to meet the inner fold, which we have seen is at a lower level

This development is shown in Fig 7, taken from embryos of 10 and 12 mm The hinder, outer, and lower aspects of the outer nasal fold in its posterior part are thus covered in by maxillary growth, and the corresponding part of the opening of the pit is closed by the extension across it of the maxillary process to reach the inner nasal fold thus forming the "primitive palate" of Dursy But about the same time, sometimes before and sometimes after the growth of the maxillary process across the pit, the lips of the two folds themselves meet and fuse as is visible in both specimens in Fig 7

We see then that the so-called "primitive palate" is formed mainly by extension of maxillary mesoderm between the outer and inner nasal folds but it also includes, above this, a separate meeting of paraxial mesoderm in these folds

FIG 7



Successive stages in the relations between the nasal folds and maxillary process as seen in embryos of 10 mm and 12 mm. In the model from which the last is drawn the mandible has been cut away so that the roof of the mouth cavity is exposed Observe that the two nasal folds come together in their hinder parts, and the maxillary process extends arrest below this fused area to meet and join with the inner and more prominent nasal fold This extension is from the outer portion of the process the inner part being but slightly prominent in the roof of the mouth reaching the inner nasal fold from behind

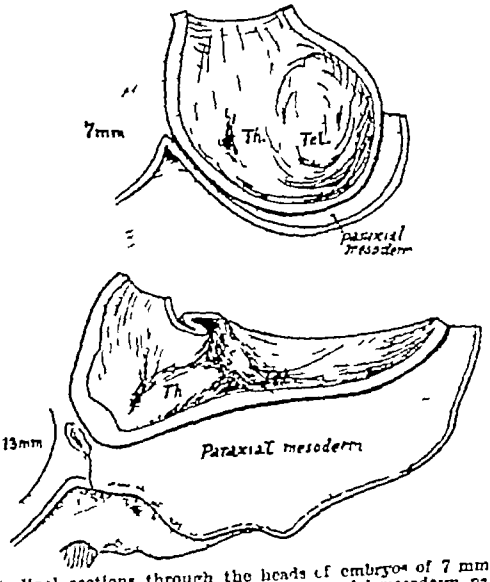
themselves At the hinder end of the olfactory pit maxillary mesoderm in relation with the outer fold is continuous with that associated (Fig 7) with the inner fold This latter part of the maxillary extension is not thick like the other but is at first a thin layer converging with its fellow towards the fronto-nasal process where they meet and are laid over the hinder aspect of this process Thus, when the maxillary primitive palate is formed it really meets maxillary tissue on

the inner fold and not the paraxial basis of that fold The fusion of the epithelial covering of these two then forms an epithelial septum between them, in subsequent growth this epithelial lamina is widened out and thinned, forming the "bucco nasal membrane," and this membrane then separates the olfactory cavity from that of the mouth behind the primitive palate

We can now examine the growth of the maxillary process in its various parts In its first stage it grows forward deep to the lining of the mouth, in contact with the paraxial mesoderm and without any trace of an epithelial layer between them In its relation with the outer nasal fold, however, it first applies its epithelial surface to a like surface of the fold, so that an epithelial lamina separates them at first, this is present in the 12 mm specimen (Fig 7), but it is soon broken through by the extending mesoderm and disappears, save in part of its deeper structure, where it seems to persist and form the rudiment of the lacrymal duct Also an epithelial lamina necessarily exists at first between the primitive palate and the fronto-nasal process, but this is quickly destroyed as the maxillary mesoderm advances on the surface of this process, but here again one part remains as the bucco nasal membrane, showing plainly that no mesoderm extends across at this spot

If we now compare this margin to the mouth which is being mapped out, we find that it corresponds in a sense with that shown in the 4 mm specimen (Fig 2) for the hinder and inner part of the olfactory region is in the field,

FIG 8



Longitudinal sections through the heads of embryos of 7 mm and 13 mm to show the great growth of the paraxial mesoderm particularly in association with the nasal region The growth has caused depression of the general level of the whole roof especially in front and has led to the pituitary being deeply placed with a long stalk Notice also how it has affected the brain Th in front of the optic opening is in the thalamencephalon while Tel is in the telencephalon The back part of the thalamencephalon is fixed in the pituitary region but the front part and the floor of the telencephalon are lifted up by the paraxial growth

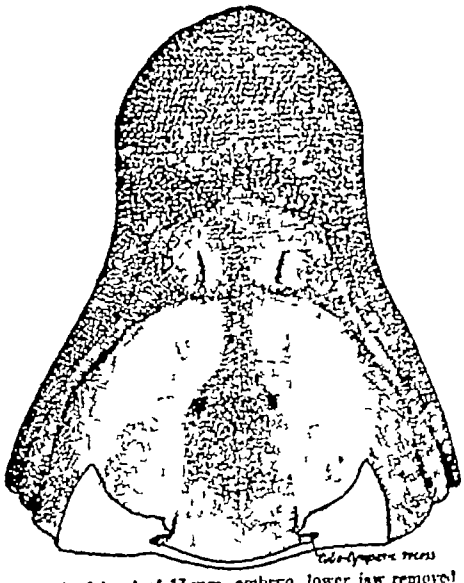
maxillary prominences mark its lateral boundaries and the opening of Rathke's pouch now reduced to a small passage is seen behind centrally placed between the bases of the maxillary processes

But we have a new level for the roof The great paraxial growth in the nasal region has depressed the front part and made the roof concave antero-posteriorly and the great maxillary growth at the sides has had the same effect in a coronal plane The least departure from the old level is in the centre behind, and even here the growth of paraxial mesoderm has brought the roof down and the extent of displacement can be judged perhaps best by looking at the new level on sagittal section comparing it with the position of the floor of the forebrain (Fig 8) which might be taken to represent the old level. Comparison of the angle between this and the pharynx suggests that the paraxial growth in front has not only depressed this part of the roof of the mouth but has also decidedly raised the front part of the forebrain

FURTHER MAXILLARY AND NASAL GROWTH

The roof in an embryo of 13-14 mm. is shown in Fig 9 The various processes and folds in the fronto-nasal region are now definitely locked together by extension of the maxillary mesoderm and destruction of any intervening epithelial septa. The bucco-nasal membrane has gone not as the result of mesodermal growth, but probably as a consequence of some of the processes of preparation only some fragments of it remaining It may persist to a much

FIG 9

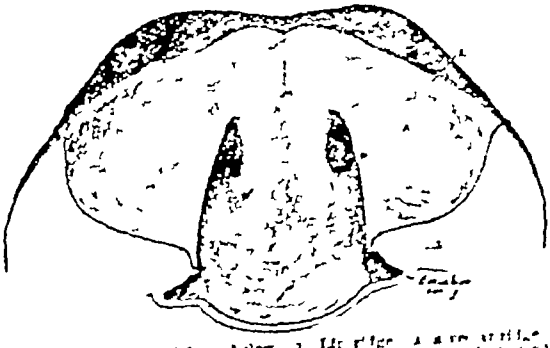


Inferior aspect of head of 13 mm embryo lower jaw removed The impression of the short paired post-sphenoid bars is quite apparent in the roof The pituitary opening is between them

later stage, thinned out and stretched Bryce figures it in an embryo of 16 mm, and I have seen its remains in one considerably older than this but it appears to be very vulnerable as soon as the nasal cavities begin to grow and does not as a rule survive for long When it breaks down the resulting opening is known as the "primitive posterior naris" and this can be considered to exist *in posse* if not *in esse* from the time the membrane comes into being Such a posterior nasal opening is very small at first, as is seen in the figure and is situated far forward immediately behind and above the primitive palate

The lateral portions of the maxillary process are slightly more differentiated than in the 12 mm specimen but if we

FIG 10

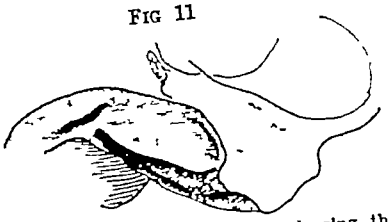


16 mm embryo [illegible] from below [illegible] palate [illegible] The evident increase in [illegible] to the growth of the brain [illegible] the main maxillary mass and behind [illegible] region and continues for some time [illegible] extent for the apparent change in [illegible] from a lateral to a more anterior [illegible]

look at the older stage of 16 mm (Fig 10) it is evident [illegible] three distinct regions are indicated here parts that will ultimately develop into the palatine alveolar and labial ridges These are all definite prominences of the maxillary region and are not brought into evidence as [illegible]

epithelial ingrowths We see the same parts, better developed and more pronounced, in the 22 mm (Fig 11) and 28 mm (Fig 12) specimens The lip ridge is the most external and dependent, reaching a large size quickly, though it is at first incomplete centrally The alveolar ridge reaches the fronto-nasal process behind the labial fold and extends on to it in the same way, by mesodermal invasion, but its progress is not so rapid The palate fold reaches the fronto-nasal process behind this, and there ends, not invading the process at any time

FIG 11

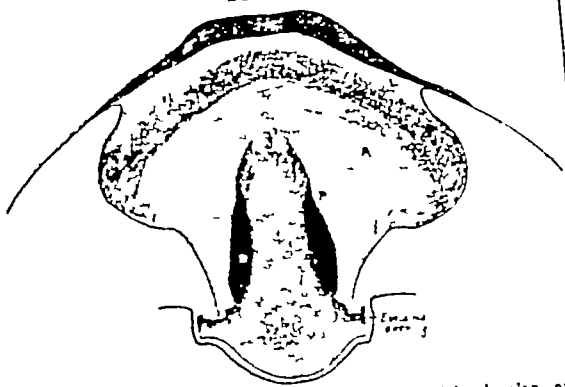


22 mm head in sagittal section showing the palate fold from within and the extent of the left nasal fossa

It is convenient to deal with the general growth of the nasal cavities at this point In the 13 mm embryo (Fig 9) the very small posterior nasal openings—it is of no importance whether they are actual or potential passages—are placed far forward on the roof just above the primitive palate, they are a little larger in the 16 mm specimen I showed a few years ago that the increase in size of the nasal cavities takes place in an upward direction, the conclusion being based on the increasing angle between the level of the roof of the cavities and the base of the skull behind the pituitary region, this angle opens out from 130° to 160° or more, while that formed with the level of the floor remains practically fixed This means that the mesodermal walls of the cavities, growing rapidly where they lie below the level of the roof, elevate this roof without depressing the floor The mesodermal walls of the hinder part of the small cavity of the 12 mm embryo are maxillary in origin and form also the boundaries of the posterior opening, so in their growth *pari passu* with the paraxial portion of the walls the height of the opening is increased in an upward direction with that of the cavities Thus when we look at the openings in the 28 mm embryo (Fig 12) the difference in height is remarkable, but the addition is all in an upward direction the lower ends of each opening still resting on the primitive palate

An extension of this sort evidently implies that the openings enlarge upward at the expense of the roof of the mouth so to speak The septum is uncovered—or more properly discovered—by the two cavities as they grow up Its basis is already laid down as paraxial condensations between the forebrain and the fronto nasal process, and as

FIG 12.



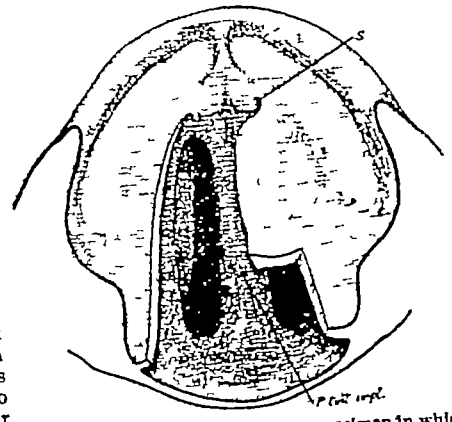
[illegible] 2 mm embryo from [illegible] Labial alveolar and palate fold The little tubercle at the end of the palate fold is the [illegible] of the uvula behind this the pharyngeal extension is cut away [illegible] the [illegible] opening The interrupted line marks the [illegible] of the dental ectodermal thickening

the cavities grow up on each side of these they find themselves lying between the cavities In other words the septum is discovered and brought into existence as a necessary result of the paired upgrowth that takes place and the free edge or back of the septum a broad surface at [illegible] is in the same way simply the portion of the roof of the mouth cavity which persists between the two extending openings of the cavities

This is the way in which the septum comes into existence, there is never at any time a "downgrowth of the septum" in the sense of a structure growing into position into a cavity secondarily, nor is any downgrowth added to the septum made in the way described, and accounts of its formation based on the conception of a downgrowth are not in accord with the facts

The growth of the maxillary mesoderm that surrounds the posterior opening and forms the hinder part of the cavity leads to the back and lower parts of both walls of each cavity being composed of tissue of maxillary origin This mode of growth of the hinder portion of the early cavity seems to me to offer an explanation of those cases of so-called congenital occlusion of the posterior nares in which an obliquely directed thick septum, sometimes bony in parts, extends upwards and backwards from the anterior part of the palatal floor of the cavity It is easy to imagine how some fault in the preliminary processes leads to the seat of active growth being situated above rather than below the level of the openings, so that these are left behind, so to speak, in the course of the growth, and a solid layer of maxillary tissue represents or takes the place of the opening lying in the plane of the early roof of the mouth The attachment of a septum of this sort, so far as I can gather from the descriptions given of them by pathologists, seems to me to be quite in accordance with the view that it represents a maxillary growth of this region which has failed to carry the opening with it in its extension

FIG 13



A schematic drawing founded on a specimen in which the palate had just closed to show the disposition of the folds On one side the fold has been cut away at its base on the other side a portion is left *in situ* showing how it closes across to the middle line behind the fronto-nasal region to meet its fellow and fuse with the back of the septum This part is the hard palate the soft palate is indicated partly cut away behind this. The definitive posterior nares are seen to be the upper parts of the long opening that exists before the palate closes s marks the position of Stenson's canal at the angle of junction of palate fold with fronto nasal process

In a general sense, then, we can look on the human nasal fossa as coming into its proper state and size from below upwards and backwards, and the formation of the cartilaginous nasal capsule is on the same lines Reconstructions of the capsule at various stages show that chondrification takes place and extends in this direction, preceded by mesenchymal condensation Chondrification may be looked on as evidence of attainment of the desired position and relations and occurs last at the upper part when this comes into position in the base of the skull

The extension of the nasal fossæ reaches its end about the ninth week and the epoch is marked by the complete chondrification in its walls and by the closure of the palate folds behind it By this time the posterior openings are very long (Fig 13) extending from the primitive palate to the level of the top of the cavity of the mouth, and when the palate folds meet they fuse with the lower two-thirds to three-quarters of the free edge of the septum thus closing the corresponding extent of the openings and constituting new floors for the cavities here The upper one-quarter or so of the edge of the septum remains between the corresponding upper parts of the openings which now constitute the definite posterior nares Thus the posterior nares are only part of the elongated posterior openings that await the closing of the palate and these are in their turn but extensions of the primitive choanæ of the earlier stages

THE PALATE FOLDS AND THEIR CLOSURE.

The palate folds can be said to form an inner edge to each maxillary process They are apparent in their posterior parts in the 12 mm embryo (Fig 7) as rounded folds

between the front portions of the tubo tympanic recesses and the mouth cleft separating the mandibular and maxillary processes They are quite well marked in their entirety in the 16 mm embryo (Fig 10), and their further growth can be seen in the 22 mm and 28 mm specimens (Fig 12) At 22 mm the inner view of the palate shows a flat vertical surface (Fig 11) which lies against a like surface of the tongue, while in the later stage this condition has been changed, the flat surface becoming hollowed in conformity with the rounded side of the tongue and the projection of the palate fold being now directed inwards and downwards and lying below the side of the mass of that organ

This change, however, only occurs in the front part of the fold, the hinder portion, the future soft palate, being opposed to a still vertically disposed tongue, remains in a vertical position beside it In the 28 mm specimen, moreover, there is apparently an indication of the distinction between hard and soft palate in the appearance of the fold itself, at any rate, there is no doubt about the meaning of the small tubercle at the hinder end of the fold below the tubal opening, for this is plainly the rudiment of the uvula of that side The new ridge that has made its appearance behind this, continuing the line of the palate fold, is a forward growth from the third visceral arch (associated with the extension of this arch in the narrowing of the Eustachian tube) which comes secondarily into relation with the maxillary palate fold proper, it forms the pharyngeal extension or posterior pillar of the fauces and need not concern us further

The palate folds reach the sides of the fronto nasal process by their pointed anterior extremities and extend no further When they close across below the septum their anterior parts are folded round this process and meet behind it, as shown in the scheme in Fig 13, leaving the process exposed between their extrême front ends Even this exposed area is partly covered in as the folds grow larger and thicker and its surface becomes wrinkled so that epithelial nests and pillars remain for some little time between its buried surface and the folds that overlap it Finally, only the small area that constitutes the incisive papilla is left uncovered. Stenson's canals mark the angles of the original separation between the process and the folds But, in order to meet below the septum, the folds must leave their position below the tongue, which occupies the cavity of the mouth and lies in contact with its roof, and must find their way above this organ, this change requires some consideration in detail

CHANGE IN POSITION OF THE PALATE FOLDS

Although the details of the formation of the palate have been known for about 50 years, it is only within the last 15 years or so that suggestions have been made concerning the factors which may be at work in bringing about the change in position of the folds with reference to the tongue In this time many hypotheses have been advanced to account for the change

W His, the first to contribute a separate study of the question attributed the process to the withdrawal of the tongue from the upper part of the cavity and from between the folds as the result of muscular action both in the tongue and on the jaw causing depression of the whole structure

Fick in his later views thought that the definitive palate is not formed from the "palate folds," but from small ridges which he described in pig embryos situated above these Anna Pölzl also, looked for the explanation of the position above the tongue in the occurrence of a new growth in a higher situation, with atrophy of the original folds But she likewise describes the tongue as growing forward out of the space between the folds as the result of growth of the associated structures of the face and not from muscular action

Schorr considered that the folds are opened out by a lively growth near their lower surfaces in the angles between them and the alveolar masses At the same time the tongue is elongated and depressed and a complicated interaction of forces between tongue and folds leads to the latter coming on to the upper surface of the tongue Pohlmann and others have thought that the change might result from a fresh modelling of the parts with widening of the ventral wall and curving inward of the side walls Fuchs ascribed the change of plane of the folds to the rapid growth of the tongue compelling it to emerge from the narrower upper part of the general cavity Frets does not think that active muscular contraction is at all likely, but considers the change to be "the expression of tension adjustment within the tongue and between the tongue and processes

Michio Inouye divides the phenomenon into two phases In the first the tongue withdraws from its situation below the base of the skull and allows the hinder portions of the folds to come above it In the second the consequent increased tension of the front parts of the folds and proportionate pressure on the tongue lead to movements of this organ and the jaw, depressing the tongue and allowing the folds to slide over it K Peter adopts the view of Inouye and refers the change to the withdrawal of the tongue and subsequent active contraction

In this summary of the views held by various writers there are certain opinions which we may at once rule out of consideration Thus, so far as concerns suggestions founded on supposed new formations at a higher level than the palate folds, the fact that such growths have never been seen is enough to condemn the views built on them The ridges described by Fick had been known for many years before he studied them, and their ultimate fate had been pointed out by Dursy Moreover, the difficulty of getting rid of the palate folds remains unsurmounted No support, too, is to be found in actual observation for the hypothesis advocated by Pohlmann Fuchs's explanation of the phenomenon could only be accepted as such, I think, under a false conception of the conditions prevailing in the mouth it is not necessary for the tongue to descend from the back of the septum for a distance greater than the thickness of the palate folds and to get below the folds the tongue would have to pass at any rate temporarily, into a smaller space—if the mouth is closed, as it ought to be in a normal embryo

The Role of the Tongue

The remaining views, with the exception of Schorr's theory of the force inherent in the palate fold centre round the tongue as concerned in the change of plane of the folds ascribing to it in one way or another the greater share in bringing about the occurrence The opinions which I formed on this subject while working on the development of the nose some years ago also allot to the tongue the main role in the undertaking

In the early stages this organ occupies practically the whole cavity of the mouth, being in contact with the roof and thus with the back of the septum as this comes into evidence, for, as I have shown this is simply the part of the roof left undisturbed between the two nasal openings as they extend upward But the tongue not only grows intrinsically but is also carried downwards and forwards as a result of the growth and elongation of the lower jaw, so it comes about that while it is still in contact with the greater part of the roof its upper and back portion has come away from the upper part of the roof The tongue is in contact normally with all the walls of the mouth completely filling that part of the cavity in which it is contained The direct examination of sections does not give us, I venture to think a correct idea of the way in which the growing tongue is pressed against the neighbouring structures, the effect of dehydration and of fixing reagents appears to alter it to a considerable extent

The palate folds are in what might be termed a subhorizontal position below the tongue They are not vertical except in their hinder parts A description or figure of the folds in a vertical position would indicate in my opinion that the section went through the region of the soft palate or that the tongue was much shrunk or depressed as the result of preparation or as a whole by the opening of the mouth accidentally or as a post mortem change

Here I may mention that the only figures given by Schorr in support of his views afford no indication of the condition or position of the tongue nor have I been able to find in his account any means of forming an opinion on this matter or on the condition of the embryos Other grounds for his views are open to criticism Not only does it seem hardly possible to imagine a force so strong in its action in the fold as to be able to lift this up against the weight of the mass of the tongue in position but his area of contact [illegible] to be found in my experience in the fold which is (in my eyes abnormally) turned down and then in the concavity of the bend where it would be [illegible] under the circumstances it would be no [illegible]

His based his opinions on an embryo which he described, but I have not been able to obtain the original description Peter, however, gives a figure of one section and from this I would have little hesitation in considering the specimen abnormal in the sense I have indicated above A like criticism, however, cannot be applied to Inouye s specimen

How the Change in Position is Brought About

The relatively small size of the folds below the tongue, compared with their thickness and general increase after they have come above that organ, is an indication that in the first situation they are compressed and their growth inhibited Their anterior ends are very small, each coming to a point on the end of the fronto-nasal process The tongue is carried down as a whole with the elongation of the lower jaw, and about the ninth week its tip comes behind and below the fronto-nasal process—i e , it is carried below the level of the folds which are attached to the upper and back part of this process The passage of the tongue between the folds here is favoured by the small size of their front ends, and now that the end of the wedge is metaphorically and almost literally introduced it seems to me easy to conceive the change of plane of the folds thus initiated going on to its complete fulfilment. Possibly the tongue may be stimulated to an irregular contraction by the change of pressures that ensue from its tip coming below the fronto nasal region, and this may be the explanation of the con dition present in one of Inouye s embryos in which the tongue was below the fold on one side, under conditions that evidently differed from those obtaining in His s specimen Or such a factor as want of perfect symmetry may lead to a one-sided preference in the slipping up of the folds But, whatever view may be thought likely concerning this point, the action itself seems to me to be of minor importance, being only the individual way of carrying on the movement started by the forward growth of the tongue Having arrived below the folds, the tongue is now necessarily at a slightly lower level in a somewhat wider space and thus room above the organ is provided in which the folds can meet below the septum of the nose The folds are now free to grow, and apparently do grow with considerable speed, and it is not long before they meet above the tongue They are at first a little distance from the septum, resting on the tongue, but this structure seems to share in the opportunity for growth provided by the change of position and soon begins to press the folds against the septum to which they adhere

But the tongue was not in contact with the upper part of the septum which on its lingual aspect is part of the roof, so that the folds here are not brought against the septum but remain on the tongue and join to form the soft palate Thus not only the change of position of the folds but also their attachment to the septum and the general arch of the whole palate depend ultimately on the agency of the tongue for their existence in a mechanical sense

The naso-pharynx is that part of the cavity left above the soft palate brought into existence by the descent of the tongue originally but probably enlarged subsequently and secondarily It seems very doubtful whether it can be claimed as a derivative from the mouth cavity proper, probably it would be more correct to describe its cavity as being originally part of that of the foregut

The portion of the mouth cavity which lies above the level of the open palate folds is frequently termed the "cavum naso pharyngeum or pharyngo-nasale apparently (at any rate in some cases) from a mistaken conception of the developmental changes taking place in the neighbourhood If it is understood that the whole nasal fossa is extra oral in its formation with all its turbinal masses and accessories it is evident that the only portion of the cavum that is taken into the final nasal cavity lies between the margin of the nasal opening and the upturned fold which is about to close this opening This is a negligible amount of space and is only represented in the nasal cavity by the extreme lowest portion of the inferior meatus just above the floor and behind the anterior foramina"

THE MESODERMAL DEVELOPMENT

In lies lons of the general distribution of the two meso dermal strata have been given throughout the preceding account of the formation of the roof We have seen that the paraxial layer is thickened centrally the thickening passing into the greater growth round the nasal and optic regions and laterally and the immediate surroundings of these special sense organs are developed in this stratum The maxillary stratum is distributed over the surface of the other, ultimately covering it completely on its inferior aspect except where the original fixed area of the primary stomodæum is developing as the pituitary body The palate folds are purely maxillary, the primitive palate is mainly maxillary but to a small extent paraxial above this, while the maxillary tissues which cover the septal (central) portion of the roof and the margins of the two posterior openings extend from here for a considerable distance on to the corresponding walls of the nasal fossæ

The premaxillary part of the upper jaw develops in the maxillary portion of the primitive palate, and the vomer is laid down in the maxillary layer on the septum, as is also the paravomerine cartilage and (probably) the recurved portion of the cupola of the cartilaginous capsule which lies against the septum The septal maxillary stratum here is continuous, inside the capsule and round the posterior part of the cupola, with that on the back part of the outer wall of the fossa, in which the palate bone and greater part of the inferior turbinate are formed The maxilla and its palatine process, on the other hand, belong to the main maxillary mesenchyme outside the walls of the capsule The details of the development of these several bones have been given from time to time by Fawcett whose researches have become a standard reference on this matter and need not be recapitulated here.

Failure of Maxillary Growth and Causation of Clefts

It is evident that the bones concerned in forming the visible roof of the mouth are maxillary in their origin, and all considerations seem to me to point to failure in the driving power of the maxillary growth as the great underlying factor in the causation or persistence of the common clefts of the palate and alveolus The failure is naturally more evident in the outlying parts of its extension, the parts which reach their position late and secondarily The real nature of this "power of growth" is, of course, at present quite beyond our ken, nor have we any clear ideas as yet about the conditions which affect it, but it seems to me quite possible—however improbable—that some means may yet be found by which this growing power may be artificially stimulated and augmented and even made available as a therapeutical adjunct

In the neighbourhood of the primitive palate the maxillary mesoderm extends on to the fronto-nasal region by a process of invasion under the epithelial lining There is no application of one epithelial surface to another a sort of extension of the conditions present when the maxillary and inner nasal processes first meet, but a direct extension, into the latter region of cells from the former process, the stratum thus formed lying superficial to the original paraxial mesoderm of the fronto nasal process

In the region of the lip the maxillary invasions advance from each side and meet in the middle as pointed extensions (see Fig 10) of the layer which enclose an angle open downwards, this rapidly closes and completes the central part of the lip Thus leaving out of account those cases that may be referred to absence of the fronto-nasal process it would seem that central fissures of the upper lip indicate failure in the maxillary stratum Normally the philtrum marks the junction of the two labial fronto-nasal extensions of the maxillary layer

The same mode of spread serves for the extension of the alveolar eminences toward the middle, it is a slower process here and allows the general shape of the underlying fronto nasal region to show for some time through the thin covering layer (see Fig 12) The alveolar eminences do not quite reach the middle line but a narrow tract between them connects the labial ridge with the area between the palate folds (Fig 13) When the teeth appear the continuity of the tract seems to be interrupted and the front portion remains as the frenum of the lip rendered prominent by the deepening of the alveolo labial sulcus beside it

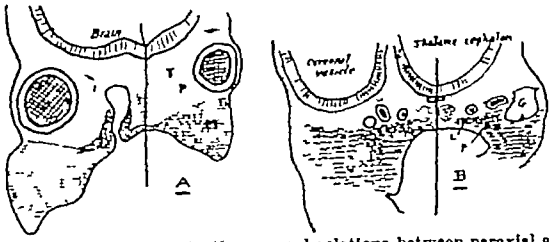
Want of time keeps me from entering on a consideration of the dentition in this region but I may point out that the position of the line of early ectodermal thickening is shown in Fig 12 and that it seems probable that only the central incisor is formed on the fronto-nasal region and although

[2] This ridge though conveniently termed "alveolar" has little to do with the formation of the permanent alveoli It appears to be concerned more with the lower of the palate fold than with the rudiments of the teeth which are formed to a lower stage

the lateral incisor may be placed over the situation of the original junction between this and the maxillary process, yet it is not improbable that this may be a situation which it acquires secondarily

The position of a complete cleft in the alveolar region would necessarily be between the fronto-nasal and maxillary processes A double complete cleft, if originally complete and due to the total failure of the maxillary process to bridge the chasm, would imply the absence of any maxillary tissues in the so called "separated premaxilla," save that reaching it from behind along the septum Under these circumstances interest centres round the nature of the bony structures found in the separate fragment It must be remembered that an incomplete cleft may be complete so far as maxillary mesoderm is concerned, the connexion only persisting between the paraxial nasal folds On the other hand, a cleft or fissure may have had maxillary tissues bridging it to some extent at one time, subsequently giving way, as Keith has pointed out, and thus a maxillary basis of some sort may be present in an apparently separate portion attached to the

FIG 14



Two schemes to illustrate the general relations between paraxial and maxillary strata in (A) the middle and (B) the hinder regions of the roof In both the left side is supposed to indicate a later stage than the right In A, P and M are the two strata In B L and P are the early lingula and pterygoid respectively and G is the Gasserian ganglion Palate folds and tongue are not shown

septum Such varying circumstances must be taken into account in any effort to place the bones found in the fragment for they may theoretically be of modified maxillary or modified paraxial nature It is rather fascinating to think of the possibility of past powers of the paraxial mesoderm coming to life again when the maxillary super stratum is removed—a revival of lost industries which have faded under the peaceful penetration of the external growth, to illustrate the process by a metaphor which comes home to us directly in these days

In the intermediate portion of the roof the conditions might be represented as in Fig 14, A The paraxial layer is thick, especially in the middle, where the condensation of the central bar is apparent Below this the maxillary mesenchyme forms a lateral mass on each side, below the paraxial surroundings of the eye, and thins away toward the middle where it lies below the central bar Later, as the nasal cavities grow upward and backward, this region is modified as shown on the left side of the figure and the central paraxial bar finds itself in the nasal septum Nasal upgrowth is not so marked a feature in the mouse and the changes, though of the same nature are accordingly modified to some extent In the fowl the enormous eye and corresponding paraxial development is correlated with a comparatively shallow maxillary stratum and the absence of upward extension of the nasal cavities leaves the central bar as an interorbital septum The ossifications in the maxillary mesoderm have the distribution they would possess in the mammal if they occurred here before the nasal extension had taken place

The Hinder Region of the Roof

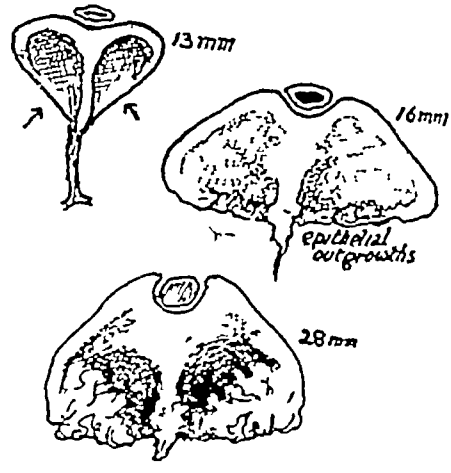
The hinder region of the roof is from some points of view its most interesting part. For brevity it may be described as it is illustrated in Fig 14 B The maxillary mesoderm is in position and in it occurs the chondrification which signalises the appearance of the outer pterygoid plate and root of the alisphenoid while the lingula is formed internal to these in the same stratum and later becomes attached to the paraxial bars and to the otic capsule It is interesting to recall that Parker in a lecture delivered here more than 30 years ago claimed the lingula as the representative remnant in the human skull of the parasphenoid of lower types a contention which, I confess seemed to me one hard to support before following its formation in the maxillary mesenchyme, the stratum in which the parasphenoid is also developed

The inner part of the great wing is laid down first in cartilage, and the rest of this bone is not called for till the cerebral vesicles require support This is afforded by outward extension of the great maxillary mass below each vesicle, the intervening paraxial tissues being converted into the membranes covering the wing The development of this part goes beyond the limits of our subject, however and it need only be said that the alisphenoid appears in its parts successively from within out The chondral portion exists alone for a considerable time, supporting the Gasserian ganglion and its branches and the outer part of the wing is added in membrane when it is required, all the parts being derived from maxillary mesenchyme The details of the chondrification and ossification have been given by Fawcett in his well-known papers

In the centre of the hinder region Rathke's pouch is at first a widely open and rather shallow recess (See Fig 3) The pouch is deepened, not by upgrowth of its fixed wall but by rapidly increasing thickness of the paraxial stratum which lies round its mouth Thus the opening is elongated and narrowed into a stalk while the upper part still remains as a large sac, fixed to the rounded lower angle of the forebrain at first, but soon separated from this

The paraxial thickening forms two short but well defined bars, one on each side of the stalk, these undergo prechondral change as distinct bars, but are later fused in a single plate of cartilage giving passage to the stalk Later still, however, the paired nature reasserts itself in the ossification of this part which forms the postsphenoid, and is traversed by the remains of the pituitary stalk or by its canal, the situation of the canal is not between post and pre sphenoid, but through the former as has been affirmed by Erdheim and Haberfeld and lately by Cope The stalk is implanted in the roof of the mouth below the post sphenoid bars, surrounded by paraxial mesoderm, but this part is gradually dislocated forward and elongated below the central paraxial thickening The dislocation is associated with the growth of the central parts of the maxillary layers along the back of the septum, and possibly also with the formation of the roof of the pharynx behind it The result

FIG 15



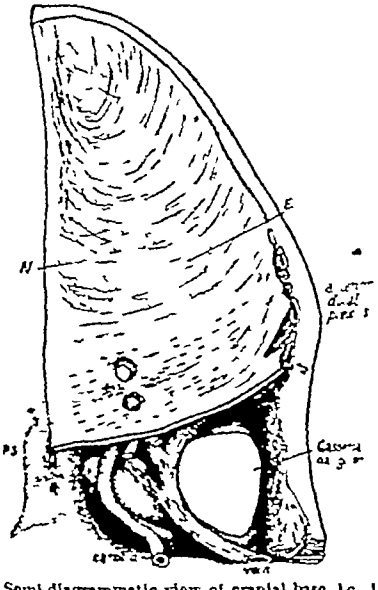
Three stages in the front a pect of the pouch separated from the brain In the first the two concavities are filled by mesoderm growing up in the direction of the arrows In the others the epithelial strands are seen first forming along the lower border Before the end of the third month the outgrowths have spreared all over the surface and constitute definite antero-lateral l

is that a long epithelial strand is drawn out from the post sphenoidal region in a forward direction so far that its point of implantation becomes situated on the central part of the roof between the nasal openings—i e on the base of the septum (see Fig 13) and when the palate is completed this point is just above the hinder limit of the fusion of the folds with the septum The secreted epithelial strand disappears later with the exception of a small fragment which persists below the sphenoid as a solid epithelioma or more frequently a small cy

Development of Pituitary Body

While these changes are going on the uncompressed part of the pouch above the post-sphenoidal bars is undergoing conversion into the antero-lateral lobes of the pituitary body Its front wall is separated from the apposed surface of the forebrain by ventro-lateral ingrowth of paraxial mesoderm, so that, when looked at from the front, it presents two concavities looking downwards and forwards and outwards (Fig 15), and separated from each other by a prominent central keel While this separation is proceeding, the true infundibular outgrowth occurs from the brain just above the upper limit of the pouch, and projects back resting centrally on its upper surface The position of this outgrowth suggests to the observer that it comes from that part of the brain which was originally (see Fig 1) the front end of the neural groove, and that it might have come into existence first in association with the front end of the foregut or perhaps the notochord It is of interest to recall researches which tend to show that Seesel s pocket a recess of the foregut just behind the membrane may be the remnant of a preoral gut Thus Kupffer described a solid prolongation of this pocket in sheep connected with the notochord and Nussbaum a little later stated that this elongation in the dog comes into contact with the neural process or hypophysis and remains in part connected with it Bonnet also described this forward growth in the dog showing that it has a lumen in earlier stages We cannot afford the time however to speculate on this question which is only suggested to us in the human embryo by the relation of the neural growth to the upper wall of Rathke s pouch

FIG 16



Semi-diagrammatic view of cranial base Ac in 13 mm embryo [illegible] Post sphenoidal bars in prechondral state [illegible] condensations round nose and eye at a deeper level represented as showing through a semi transparent superficial layer A little further back the optic nerve and carotid are seen piercing this layer and round these the condensation of the orbito-sphenoid is shown by short lines extending out over the anterior dural veins two areas of prechondral change are shown near the nerve and artery Further back the paraxial stratum has been removed the prechondral mass of the external pterygoid is seen between the artery and vein and that of the lingula between the artery and post sphenoid bar The great superior nerve passes below the artery and the third and sixth are above the vein

As soon as the mesodermal growth has freed the pouch from the apposed neural wall the upper part of the pouch commences to grow up on each side of the infundibular process forming a couple of hollow cornua and this is the first true upgrowth to be found in its history The antero-lateral lobes are formed by sprouts growing from its front wall into the mesoderm occupying the concavities here The growth begins below and its area of origin extends upward finally involving the cornua, which have by this time grown up and met over the back of the neural process The lumen of the main pouch remains widely patent while these growths are appearing and its back and upper wall is applied to the infundibular or neural lobe which is now hollow and its free end the posterior wall of the pouch shows an oval glandular outgrowth but remains in proximity with all its extent as an epithelial layer applied to the neural lobe and [illegible] apparently the pars intermedia of Herdman

GENERAL DEVELOPMENT OF ANTERIOR PART OF CRANIAL BASE

Fig 16 is a semi diagrammatic rendering of the right half of part of the model of the 13 mm head, somewhat flattened out to exhibit the necessary structures In the posterior part the two post-sphenoidal bars are shown, developed in paraxial mesoderm, and the stalk of the pituitary is seen between them, the developing gland being taken away with the brain Outside this region are seen the prechondral rudiments of the inner parts of the great wing lying in the maxillary mesoderm below the carotid artery and primary head vein, while the third and sixth nerves are passing above these vessels in the paraxial stratum The outer part of the great wing will not be called into existence for some time to come, and its only representative probably is to be found in the sections as a maxillary mass slightly developed just to the outer side of the Gasserian ganglion

The paraxial stratum has been removed in this area, but has been left *in situ* in front of it, and can be divided for descriptive purposes into two layers—superficial or neural, next the brain, and deep, next the maxillary stratum The optic stalk and carotid artery are shown passing through the superficial layer near one another, and the layer is condensed round them and shows a prechondral state in two places here The condensation extends centrally and outwards over the veins of the anterior dural plexus (Streeter), suggesting a covering formation for these veins Evidently we have here the early rudiment of the lesser wing of the sphenoid

Further forward the superficial layer thins considerably, and is represented in the figure as semi transparent, so that the underlying condensations round the eye and nose are apparent through it situated at a lower level in the deep layer These condensations are continuous at their upper parts, the connexion being also visible on the outer surface of the head

As the nasal cavities grow upwards and backwards the deep condensations are brought up towards the level of the lesser wing As they get into position the connecting mesenchyme between them comes against the lesser wing, and the cartilaginous spheno-orbital plate is formed in it, this disappears later and is replaced by the orbital plate of the frontal The superficial layer covering the condensations forms the immediate coverings of the brain

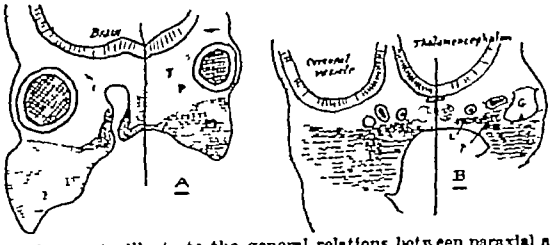
Thus we see that the base, as far back as and including the lesser wing, is formed in paraxial mesoderm but, behind these wings the paraxial stratum has been thinned out and carried back to provide the membranes of the tentorium, &c, leaving the maxillary stratum to supply the bony support for the temporo-sphenoidal pole in the interval between paraxial lesser wing and paraxial otic capsule In other words the great wing of the sphenoid ought from its origin to be included among the bones of the visceral skeleton which help to build up the complete skull

EDINBURGH FACULTY OF MEDICINE THE ADMISSION OF WOMEN —The Senatus Academicus of Edinburgh University decided at their meeting on June 29th to recommend to the University Court that the classes in the Faculty of Medicine should be open to women The new Principal, Sir James A Ewing presided over the meeting which was attended by a majority of the members nearly 40 being present Up to the present the University has offered a medical qualification to women without taking any responsibility for their education which has to be obtained in an extra mural institution There are now 170 students at the Women s School of Medicine at the Surgeons' Hall, over 60 of these having entered during the past year The accommodation at the school is overtaxed while the depletion of the attendance at the University classes owing to the war leaves plenty of room there It is known that a number of professors in the University are favourable to the admittance of women to the medical classes and opposition to the scheme is based more on the fear of an innovation and its practical working than upon any question of principle It is suggested that the introduction of women might tend to reduce the number of male students Another difficulty which has been raised is the possible shortage of clinical material since there is only one large infirmary in the city but it is thought that Leith Hospital and the country hospitals might be made available

the lateral incisor may be placed over the situation of the original junction between this and the maxillary process, yet it is not improbable that this may be a situation which it acquires secondarily

The position of a complete cleft in the alveolar region would necessarily be between the fronto-nasal and maxillary processes A double complete cleft if originally complete and due to the total failure of the maxillary process to bridge the chasm, would imply the absence of any maxillary tissues in the so called "separated premaxilla," save that reaching it from behind along the septum Under these circumstances interest centres round the nature of the bony structures found in the separate fragment It must be remembered that an incomplete cleft may be complete so far as maxillary mesoderm is concerned, the connexion only persisting between the paraxial nasal folds On the other hand, a cleft or fissure may have had maxillary tissues bridging it to some extent at one time, subsequently giving way, as Keith has pointed out, and thus a maxillary basis of some sort may be present in an apparently separate portion attached to the

FIG 14



Two schemes to illustrate the general relations between paraxial and maxillary strata in (A) the middle and (B) the hinder regions of the roof In both the left side is supposed to indicate a later stage than the right In A, P and M are the two strata in B L and P are the early lingula and pterygoid respectively and G is the Gasserian ganglion Palate folds and tongue are not shown

septum Such varying circumstances must be taken into account in any effort to place the bones found in the fragment, for they may theoretically be of modified maxillary or modified paraxial nature It is rather fascinating to think of the possibility of past powers of the paraxial mesoderm coming to life again when the maxillary super stratum is removed—a revival of lost industries which have faded under the peaceful penetration of the external growth, to illustrate the process by a metaphor which comes home to us directly in these days

In the intermediate portion of the roof the conditions might be represented as in Fig 14, A The paraxial layer is thick, especially in the middle, where the condensation of the central bar is apparent Below this the maxillary mesenchyme forms a lateral mass on each side, below the paraxial surroundings of the eye, and thins away toward the middle where it lies below the central bar Later, as the nasal cavities grow upward and backward, this region is modified as shown on the left side of the figure and the central paraxial bar finds itself in the nasal septum Nasal upgrowth is not so marked a feature in the mouse and the changes, though of the same nature are accordingly modified to some extent In the fowl the enormous eye and corresponding paraxial development is correlated with a comparatively shallow maxillary stratum and the absence of upward extension of the nasal cavities leaves the central bar as an interorbital septum The ossifications in the maxillary mesoderm have the distribution they would possess in the mammal if they occurred here before the nasal extension had taken place

The Hinder Region of the Roof

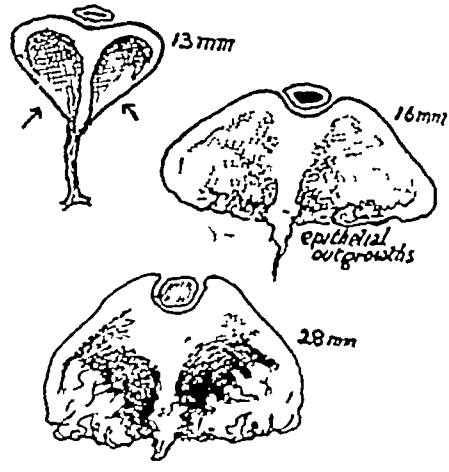
The hinder region of the roof is from some points of view its most interesting part For brevity it may be described as it is illustrated in Fig 14 B The maxillary mesoderm is in position and in it occurs the chondrification which signalises the appearance of the outer pterygoid plate and root of the alisphenoid, while the lingula is formed internal to these in the same stratum and later becomes attached to the paraxial bars and to the otic capsule. It is interesting to recall that Parker in a lecture delivered here more than 30 years ago claimed the lingula as the representative remnant in the human skull of the parasphenoid of lower types a contention which I confess seemed to me one hard to support before following its formation in the maxillary mesenchyme, the stratum in which the parasphenoid is also developed

The inner part of the great wing is laid down first in cartilage, and the rest of this bone is not called for till the cerebral vesicles require support This is afforded by outward extension of the great maxillary mass below each vesicle, the intervening paraxial tissues being converted into the membranes covering the wing The development of this part goes beyond the limits of our subject however and it need only be said that the alisphenoid appears in its parts successively from within out The chondral portion exists alone for a considerable time, supporting the Gasserian ganglion and its branches, and the outer part of the wing is added in membrane when it is required, all the parts being derived from maxillary mesenchyme The details of the chondrification and ossification have been given by Fawcett in his well known papers

In the centre of the hinder region Rathke's pouch is at first a widely open and rather shallow recess (See Fig 3) The pouch is deepened, not by upgrowth of its fixed wall but by rapidly increasing thickness of the paraxial stratum which lies round its mouth Thus the opening is elongated and narrowed into a stalk, while the upper part still remains as a large sac, fixed to the rounded lower angle of the forebrain at first, but soon separated from this

The paraxial thickening forms two short but well defined bars, one on each side of the stalk, these undergo pre chondral change as distinct bars, but are later fused in a single plate of cartilage giving passage to the stalk Later still however the paired nature reasserts itself in the ossification of this part, which forms the postsphenoid and is traversed by the remains of the pituitary stalk or by its canal, the situation of the canal is not between post and pre sphenoid, but through the former, as has been affirmed by Erdheim and Haberfeld, and lately by Cope The stalk is implanted in the roof of the mouth below the post sphenoid bars surrounded by paraxial mesoderm but this part is gradually dislocated forward and elongated below the central paraxial thickening The dislocation is associated with the growth of the central parts of the maxillary layers along the back of the septum, and possibly also with the formation of the roof of the pharynx behind it The result

FIG 15



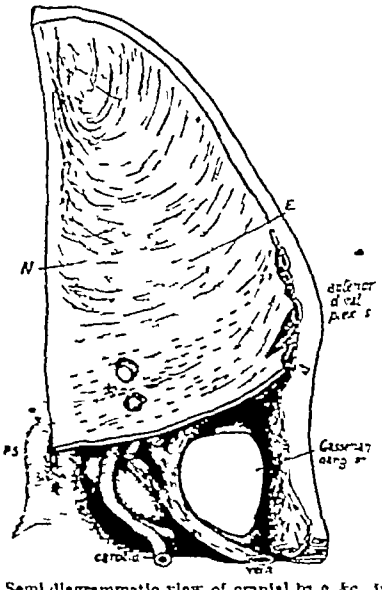
Three stages in the front aspect of the pouch seen from the brain In the first the two concavities are filled by mesoderm growing up in the direction of the arrows In the others the epithelial buds are seen first forming along the lower border Before the end of the third month the outgrowths have appeared all over the surface and constitute definite antero-lateral lobes

is that a long epithelial strand is drawn out from the post sphenoidal region in a forward direction so far that the point of implantation becomes situated on the central part of the roof between the nasal openings—i e on the back of the septum (see Fig 13), and when the palate is complete this point is just above the hinder limit of the fusion of the folds with the septum The attached epithelial strand disappears later with the exception of a small fragment which persists below the sphenoid as a solid cylinder or more frequently a small cy

Development of Pituitary Body

While these changes are going on, the uncompressed part of the pouch above the post-sphenoidal bars is undergoing conversion into the antero lateral lobes of the pituitary body Its front wall is separated from the apposed surface of the forebrain by ventro-lateral ingrowth of paraxial mesoderm, so that, when looked at from the front it presents two concavities looking downwards and forwards and outwards (Fig 15), and separated from each other by a prominent central keel While this separation is proceeding, the true infundibular outgrowth occurs from the brain just above the upper limit of the pouch, and projects back resting centrally on its upper surface The position of this outgrowth suggests to the observer that it comes from that part of the brain which was originally (see Fig 1) the front end of the neural groove, and that it might have come into existence first in association with the front end of the foregut or perhaps the notochord It is of interest to recall researches which tend to show that Seesel s pocket, a recess of the foregut just behind the membrane may be the remnant of a preoral gut Thus Kupffer described a solid prolongation of this pocket in sheep connected with the notochord, and Nussbaum, a little later, stated that this elongation in the dog comes into contact with the neural process or hypophysis and remains in part connected with it Bonnet also described this forward growth in the dog, showing that it has a lumen in earlier stages We cannot afford the time however, to speculate on this question which is only suggested to us in the human embryo by the relation of the neural growth to the upper wall of Rathke s pouch

FIG 16



Semi diagrammatic view of cranial base &c in 13 mm embryo 1 s Post sphenoidal bars in prechondral state N E, condensations round nose and eye at a deeper level represented as showing through a semi transparent superficial layer A little further back the optic nerve and carotid are seen piercing this layer and round these the condensation of the orbitosphenoid is shown by short lines extending out over the anterior dural veins two areas of prechondral change are shown near the nerve and artery Further back the paraxial stratum has been removed the prechondral mass of the external pterygoid is seen between the artery and vein and that of the lingula between the artery and post sphenoid bar The great superior petr nerve passes below the artery and the third and sixth are above the vein

As soon as the mesodermal growth has freed the pouch from the apposed neural wall the upper part of the pouch commences to grow up on each side of the infundibular process forming a couple of hollow cornua and this is the first true upgrowth to be found in its history The antero-lateral lobes are formed by sprouts growing from its front wall into the mesoderm occupying the concavities here The growth begins below and its area of origin extends upward finally involving the cornua which have by this time grown up and met over the [illegible] of the neural [illegible] The lumen of the main pouch remains widely patent while these growths [illegible] appear in [illegible] and its back and upper wall is applied to the infundibular or neural lobe which is now bulbous at its free end the posterior wall of the pouch shows an occasional alveolar outgrowth but remains in practically all [illegible] extent as an epithelial layer applied to the [illegible] and [illegible] constitutes apparently the parts [illegible] of Hermann

GENERAL DEVELOPMENT OF ANTERIOR PART OF CRANIAL BASE

Fig 16 is a semi diagrammatic rendering of the right half of part of the model of the 13 mm head, somewhat flattened out to exhibit the necessary structures In the posterior part the two post-sphenoidal bars are shown, developed in paraxial mesoderm, and the stalk of the pituitary is seen between them, the developing gland being taken away with the brain Outside this region are seen the prechondral rudiments of the inner parts of the great wing lying in the maxillary mesoderm below the carotid artery and primary head vein, while the third and sixth nerves are passing above these vessels in the paraxial stratum The outer part of the great wing will not be called into existence for some time to come, and its only representative probably is to be found in the sections as a maxillary mass slightly developed just to the outer side of the Gasserian ganglion

The paraxial stratum has been removed in this area, but has been left *in situ* in front of it and can be divided for descriptive purposes into two layers—superficial or neural, next the brain and deep, next the maxillary stratum The optic stalk and carotid artery are shown passing through the superficial layer near one another, and the layer is condensed round them and shows a prechondral state in two places here The condensation extends centrally and outwards over the veins of the anterior dural plexus (Streeter), suggesting a covering formation for these veins Evidently we have here the early rudiment of the lesser wing of the sphenoid

Further forward the superficial layer thins considerably, and is represented in the figure as semi transparent, so that the underlying condensations round the eye and nose are apparent through it, situated at a lower level in the deep layer These condensations are continuous at their upper parts the connexion being also visible on the outer surface of the head

As the nasal cavities grow upwards and backwards the deep condensations are brought up towards the level of the lesser wing As they get into position the connecting mesenchyme between them comes against the lesser wing, and the cartilaginous spheno-orbital plate is formed in it, this disappears later and is replaced by the orbital plate of the frontal The superficial layer covering the condensations forms the immediate coverings of the brain

Thus we see that the base, as far back as and including the lesser wing, is formed in paraxial mesoderm but behind these wings, the paraxial stratum has been thinned out and carried back to provide the membranes of the tentorium, &c , leaving the maxillary stratum to supply the bony support for the temporo-sphenoidal pole in the interval between paraxial lesser wing and paraxial otic capsule In other words the great wing of the sphenoid ought, from its origin, to be included among the bones of the visceral skeleton which help to build up the complete skull

EDINBURGH FACULTY OF MEDICINE THE ADMISSION OF WOMEN —The Senatus Academicus of Edinburgh University decided at their meeting on June 29th to recommend to the University Court that the classes in the Faculty of Medicine should be open to women The new Principal, Sir James A Ewing presided over the meeting, which was attended by a majority of the members, nearly 40 being present Up to the present the University has offered a medical qualification to women without taking any responsibility for their education which has to be obtained in an extra mural institution There are now 170 students at the Women s School of Medicine at the Surgeons' Hall, over 60 of these having entered during the past year The accommodation at the school is overtaxed while the depletion of the attendance at the University classes owing to the war leaves plenty of room there It is known that a number of professors in the University are favourable to the admittance of women to the medical classes and opposition to the scheme is based more on the fear of an innovation and its practical working than upon any question of principle It is suggested that the introduction of women might tend to reduce the number of male students Another difficulty which has been raised is the possible shortage of clinical material, since there is only one large infirmary in the city, but it is thought that Leith Hospital and the county hospitals might be made available

AN INVESTIGATION INTO SOME OF THE

EFFECTS OF THE STATE OF NUTRITION OF THE MOTHER DURING PREGNANCY AND LABOUR ON THE CONDITION OF THE CHILD AT BIRTH AND FOR FIRST FEW DAYS OF LIFE

BY G F DARWALL SMITH, M A., B M, B CH OXON, F R C S ENG,

ASSISTANT OBSTETRIC PHYSICIAN ST GEORGE'S HOSPITAL LONDON
PHYSICIAN GENERAL LYING-IN HOSPITAL, LAMBETH S E.
SURGEON TO OUT PATIENTS SAMARITAN FREE HOSPITAL
FOR WOMEN MARYLEBONE ROAD N W

THIS investigation embodies the results of an attempt to estimate some of the effects of the state of a mother's nutrition during pregnancy and at the time of labour on the condition of her child at birth and during the first few days of life, as deduced from statistics obtained from the lying in hospitals of London and Dublin The total number of cases investigated was 6162 of which 3721 represented hospital experience in London and 2441 similar experience in Dublin The method adopted to obtain the statistics was to send out a number of printed cards to the hospitals, on each of which were entered the particulars of one case by the resident medical officer or registrar of the hospital The cases were not selected in any way The information thus obtained has been carefully classified and arranged to enable certain conclusions to be drawn if possible

The most difficult thing in the investigation has been to determine what was the state of a mother's nutrition so that comparisons might be made between different cases An attempt has been made to arrive at this in three ways

1. The weights and heights of the patients have been taken soon after they came to the hospitals and before delivery From these data tables were constructed showing the average weight of a mother for any given height, the London and Dublin mothers being treated separately, because it was found that the women of these two cities showed a distinct difference in this respect A similar height and weight ratio was also taken after excluding all those cases which were shown by criteria 2 and 3 mentioned below, to be in a state of either extremely good or extremely bad nutrition, but the average figures so obtained differed so little from those obtained by the first method that the state of nutrition, so far as this criterion is concerned, has been deduced from the former tables only Unless there were at least 50 women of any given height from whom the average weight could be computed, the cases were discarded as useless for the purpose of this investigation The maximum number of women of any given height in London in the series under examination was 580, with a height of 5 ft 2 in and in Dublin 325 with a height of 5 ft. 2 in The average figures obtained in this way were checked by comparing the weights at labour of 52 women with their weights two months later when involution was presumably complete In this way the average loss of weight was ascertained, and by adding this amount to the average weight for any given height of a woman in ordinary circumstances as given in Hutchison's tables a result was obtained which agreed very closely with the average figures obtained from the cases weighed at the time of labour It may be noted in passing that the women whose state of nutrition was good according to criteria 2 and 3 appeared to lose more weight during the puerperium than did those whose state of nutrition was bad according to the same criteria but the total number investigated in this way was too small to allow any certain conclusion to be drawn on this point

2 The second way in which an attempt was made to arrive at the state of nutrition of a woman at the time of labour was by getting the medical officer in charge of her to record his impression as to whether this was good average or bad on the card referring to her case.

3 The third way was by having recorded on the cards each woman's own account of the amount of food she had been able to obtain during her pregnancy as being good average or bad

It was noticeable that a large percentage of those women whose state of nutrition was bad according to criteria 2 and 3 could not be weighed and measured when they arrived at hospital, owing either to the advanced state of labour or to some complication such as accidental hæmorrhage Cases in which the malnutrition was due to disease have been excluded

As regards the height and weight ratio, those cases have been classed as good whose weight exceeded the average weight of women one inch taller, those cases as bad whose weight fell short of the average weight of women one inch shorter, all other cases have been classed as average It will be seen from the figures that the number of cases with average nutrition as tested by this height and weight ratio is smaller than that of those with either good or bad nutrition This of course, means that many average cases are included in the good and bad classes and the effect is to understate rather than overstate the conclusions drawn from the good and bad classes, but if the average class had been enlarged by using a different method the number of cases with bad nutrition according to all three criteria would have been so small as to be valueless

In the light of the above three criteria of the state of a woman's nutrition all the cases available have been divided into classes as follow —

A 3, Cases in which the height and weight ratio, the observed state of nutrition, and the nutritional history are all bad

B 3 Cases in which the height and weight ratio the observed state of nutrition, and the nutritional history are all average

C 3, Cases in which the height and weight ratio the observed state of nutrition, and the nutritional history are all good

A, Cases in which the height and weight ratio is bad

B, Cases in which the height and weight ratio is average

C, Cases in which the height and weight ratio is good

In this classification it will be noticed that most stress is laid on the height and weight ratio

Influence of the State of Nutrition of the Mother on the Death of the Child during or before Labour

The percentage of dead births in the case of women of bad nutrition (A 3) was 7 7 per cent out of a total of 65 cases If all the cases suffering from accidental hæmorrhage could have been weighed and measured, the percentage would probably have been still higher In the class of average nutrition (B 3) the dead births are 1 1 per cent out of a total of 183 cases In the class of good nutrition (C 3) the percentage is 1 9 for 860 cases It is noticeable that though the class of lowest nutrition has by far the highest percentage of dead births the class of average nutrition has a lower percentage than the class of good nutrition This may be due to the increased weight of the babies in the class of good nutrition (*vide infra*) It has to be observed however that the last-named class is much larger than the two others When the height and weight ratio alone is considered, the dead births are 2 1 per cent for 2280 cases of bad nutrition 1 1 per cent for 978 cases of average nutrition and 1 7 per cent for 1824 cases of good nutrition again a rather higher percentage for those of good than for those of average nutrition

Influence of the State of Nutrition of the Mother on Prematurity of Labour

In considering these figures it must again be remembered that many mothers with accidental hæmorrhage could not be weighed and measured Here 11 9 per cent of 59 labours were premature in the class of bad nutrition (A 3) In the class of average nutrition (B 3) 2 7 per cent out of 183 cases In the class of good nutrition (C 3) 1 3 per cent out of 848 cases So cases grouped by the height and weight ratio alone when the mothers nutrition was bad 5 3 per cent were premature out of 2225 cases, when it was average 2 per cent. out of 960 cases and when it was good 2 7 per cent out of 1795 cases

Influence of the State of Nutrition of the Mother on the Weight of the Full time Infant at Birth

For this purpose the birth weight has been considered to be above the average if it exceeded 8 lb to be of average value if between 6 lb and 8 lb and to be below the average if below 6 lb In the class of bad nutrition (A 3) out of 50 babies 10 per cent were above and 1 in per cent below

the average weight In the class of average nutrition (B 3) out of 177 babies 12·4 per cent are above and 11 3 per cent are below In the class of good nutrition (C 3) 40 1 per cent are above and 3 1 per cent. below out of 836 babies In this case a state of maternal nutrition above the average seems to have a very marked effect in increasing the baby s weight whereas a bad state of nutrition on the part of the mother has less effect in decreasing it than might have been expected, since the figures for the class of bad nutrition and for that of average nutrition are not very widely removed from one another When the height and weight ratio alone is taken into consideration, out of 2108 babies of mothers with bad nutrition 17 7 per cent. were above the average weight and 11 8 per cent below, out of 943 babies of mothers with average nutrition 23·4 per cent. were above and 8 1 per cent. below, and out of 1839 babies of mothers with good nutrition 34·6 per cent were above and 4 1 per cent below

Influence of the State of Nutrition of the Mother on Post natal Mortality of Infants

Out of 3593 babies born in the London hospitals 2 1 per cent. died during the first ten days of life. If, however, those cases are excluded to which the height and weight ratio could not be applied, in which the mother s malnutrition was due to disease, or in which the baby died as the result of injury malformation or syphilis, there remain 3015 babies, of whom 1 per cent died. As contrasted with this, out of 45 babies born in London of mothers with bad nutrition (A 3) 6 66 per cent died, out of 184 babies of mothers whose state of nutrition was average (B 3) 0 5 per cent died, and out of 328 babies of mothers with good nutrition (C 3) 0 3 per cent. died. Where the height and weight ratio alone was bad the death rate was 1 3 per cent. for 1177 babies, where it was average 0 5 per cent. for 589 babies, and where it was good 1 per cent. for 1249 babies In the Dublin hospitals during the first eight days of life the death rate for all the 2439 babies was 2 5 per cent and for the 1703 cases which could be classified 0 3 per cent. On the other hand the death rate for the 12 Dublin babies of mothers with bad nutrition (A 3) was 8 3 per cent, where the mother's state of nutrition was average (B 3) none of the 8 babies died, where it was good (C 3) 0 8 per cent of 512 babies died When the height and weight ratio alone is considered 0 9 per cent. of 934 babies of mothers with bad height and weight ratio died, 0 4 per cent of 241 babies born of mothers with average height and weight ratio, and 0 8 per cent of 533 babies born of mothers with good height and weight ratio

Influence of the State of Nutrition of the Mother on the Progress of the Child after Birth

For the purpose of ascertaining the progress of the babies after birth their weights on the tenth day in the case of London babies and on the eighth day in the case of Dublin babies (since the Dublin babies were not as a rule kept in hospital after the eighth day) have been compared with their birth weights, and the change in weight has been contrasted with the average weight curve given by Holt.[1] The condition has been labelled "satisfactory" if the progress has been equal to or better than that shown on this curve In all other cases it has been labelled unsatisfactory or the death of the child has been recorded Separate tables have been made out for those babies who were fed entirely on the breast for those who were fed entirely artificially and for those fed partly on the breast and partly artificially (mixed fed) Those cases have been excluded in which the mothers malnutrition was due to disease and those in which the baby died or failed to thrive as the result of injury malformation or syphilis Twins also have been excluded Premature babies have been tabulated separately but they were too few in number to afford data for conclusions of any value

To take first the *full-time babies fed entirely on the breast* in the London hospitals there were 25 babies of mothers with bad nutrition (A 3), of these 64 per cent. progressed satisfactorily and 36 per cent. failed to thrive None died When the mothers nutrition was average (B 3) out of 103 babies 61 1 per cent. progressed 38 per cent failed to thrive and 0 8 per cent died When the mothers nutrition was good (C 3) out of 251 babies 70 1 per cent progressed 29·8 per cent. failed to thrive and none died. When the cases are classified by the mothers height and weight ratio alone, of 818 babies born in London of mothers whose height and weight ratio was bad, 65 9 per cent flourished, 33 7 per cent failed to thrive, and 0·4 per cent died. When the mothers' height and weight ratio was average out of 418 babies 62 2 per cent flourished, 37 5 per cent. failed to thrive, and 0 2 per cent. died. When the height and weight ratio was good, of 836 babies 63 2 per cent flourished, 36 6 per cent failed to thrive and 0 2 per cent died The Dublin cases in the classes of bad and average nutrition were so few that conclusions can hardly be drawn from them Moreover, it is noticeable that mixed breast and artificial feeding seems to be resorted to much more readily in London, when the baby does not seem to be thriving, than in Dublin Possibly this is partly due to the fact that the London babies stay longer in hospital, so that their progress can be better gauged.

To the figures for the *full-time babies fed partly on the breast and partly artificially* the same criticisms, of course apply, and the Dublin cases are so few as to be almost valueless There were only 9 full time babies of this kind in London whose mothers nutrition was bad (A 3) Of these, 33 3 per cent. flourished 55 5 per cent failed to thrive and 11 1 per cent died When the mothers' nutrition was average (B 3) out of 66 babies 42 4 per cent flourished, 57 6 per cent. failed to thrive, and none died. When the mothers' nutrition was good (C 3), out of 58 babies 32 8 per cent flourished, 67 2 per cent. failed to thrive and none died Of the London babies, when the mothers height and weight ratio was bad, 30 4 per cent. flourished 68 4 per cent failed to thrive, and 1 3 per cent died out of 237 babies Similarly when the height and weight ratio was average, the figures are 35·9, 64 and 0 per cent. for 142 babies, and 30 3, 69 4 and 0 3 per cent when the height and weight ratio was good

The numbers of the *full time babies who were fed entirely artificially* were too few to allow of any useful deductions being drawn.

With regard to the *infantile death-rate before lactation was established* the combined figures for London and Dublin give 51 babies whose mothers nutrition was bad (A 3) with a death rate of 2 per cent 184 babies of mothers with average nutrition (B 3) with a death rate of 0 and 627 babies of mothers whose nutrition was good (C 3) with a death rate of 0 2 per cent. When the height and weight ratio alone is considered the death rate was approximately the same for all classes

From the foregoing figures it does not appear that the state of nutrition of the mother at the time of labour and during her pregnancy has any marked influence on the progress of 'mixed fed' and breast-fed babies during the first eight or ten days of life On the other hand the death rate of babies before lactation is established may perhaps be higher when their mothers are really badly nourished It must be remembered that from the time of labour until their discharge from hospital all the mothers were presumably receiving an ample diet

Influence of the State of Nutrition of the Mother on her Capability of Suckling

The percentage of breast-fed babies is very much higher in Dublin than in London and this quite apart from the question of mixed feeding since the percentage of artificially fed babies—that is of mothers who had no milk at all—is much higher in London than in Dublin Both in London and in Dublin however the state of the mother s nutrition does seem to have a definite influence on her capability of suckling Of a total of 3533 babies born in London 73 21 per cent were breast fed 24 32 per cent were mixed fed, and 2 47 per cent artificially fed Of 2352 Dublin babies 93 51 per cent. were breast fed 1 23 per cent were mixed fed and 0 25 per cent artificially fed These figures exclude babies who died before lactation was established and those who were not breast fed owing to extraneous causes, such as tubercle syphilis sepsis sore nipples illegitimacy etc Of the 38 babies in London who of mothers nutrition was bad (A 3) 65 8 per cent were breast fed 23 4 per cent mixed fed and 5 3 per cent artificially fed These have to be compared with 62 7 36 7 and 0 6 per cent for 153 babies with mothers nutrition was average (B 3), and with 73 5 17 9 and 2 5 per cent for 316 babies whose

[1] [illegible]

AN INVESTIGATION INTO SOME OF THE

EFFECTS OF THE STATE OF NUTRITION OF THE MOTHER DURING PREGNANCY AND LABOUR ON THE CONDITION OF THE CHILD AT BIRTH AND FOR FIRST FEW DAYS OF LIFE

BY G F DARWALL SMITH, M A., B M, B CH OXON, F R C S ENG,

ASSISTANT OBSTETRIC PHYSICIAN ST GEORGE'S HOSPITAL, LONDON PHYSICIAN GENERAL LYING-IN HOSPITAL, LAMBETH S F SURGEON TO OUT PATIENTS SAMARITAN FREE HOSPITAL FOR WOMEN MARYLEBONE ROAD N W

THIS investigation embodies the results of an attempt to estimate some of the effects of the state of a mother's nutrition during pregnancy and at the time of labour on the condition of her child at birth and during the first few days of life, as deduced from statistics obtained from the lying in hospitals of London and Dublin The total number of cases investigated was 6162 of which 3721 represented hospital experience in London and 2441 similar experience in Dublin The method adopted to obtain the statistics was to send out a number of printed cards to the hospitals, on each of which were entered the particulars of one case by the resident medical officer or registrar of the hospital The cases were not selected in any way The information thus obtained has been carefully classified and arranged to enable certain conclusions to be drawn if possible

The most difficult thing in the investigation has been to determine what was the state of a mother's nutrition so that comparisons might be made between different cases An attempt has been made to arrive at this in three ways

1 The weights and heights of the patients have been taken soon after they came to the hospitals and before delivery From these data tables were constructed showing the average weight of a mother for any given height, the London and Dublin mothers being treated separately, because it was found that the women of these two cities showed a distinct difference in this respect A similar height and weight ratio was also taken after excluding all those cases which were shown by criteria 2 and 3, mentioned below, to be in a state of either extremely good or extremely bad nutrition, but the average figures so obtained differed so little from those obtained by the first method that the state of nutrition so far as this criterion is concerned, has been deduced from the former tables only Unless there were at least 50 women of any given height from whom the average weight could be computed, the cases were discarded as useless for the purpose of this investigation The maximum number of women of any given height in London in the series under examination was 580, with a height of 5 ft 2 in and in Dublin 325 with a height of 5 ft 2 in The average figures obtained in this way were checked by comparing the weights at labour of 52 women with their weights two months later when involution was presumably complete In this way the average loss of weight was ascertained, and by adding this amount to the average weight for any given height of a woman in ordinary circumstances, as given in Hutchison's tables, a result was obtained which agreed very closely with the average figures obtained from the cases weighed at the time of labour It may be noted in passing that the women whose state of nutrition was good according to criteria 2 and 3 appeared to lose more weight during the puerperium than did those whose state of nutrition was bad according to the same criteria, but the total number investigated in this way was too small to allow any certain conclusion to be drawn on this point

2 The second way in which an attempt was made to arrive at the state of nutrition of a woman at the time of labour was by getting the medical officer in charge of her to record his impression as to whether this was good, average or bad on the card referring to her case.

3 The third way was by having recorded on the cards each woman's own account of the amount of food she had been able to obtain during her pregnancy as being good average or bad

It was noticeable that a large percentage of those women whose state of nutrition was bad according to criteria 2 and 3 could not be weighed and measured when they arrived at hospital, owing either to the advanced state of labour or to some complication such as accidental hæmorrhage Cases in which the malnutrition was due to disease have been excluded

As regards the height and weight ratio those cases have been classed as good whose weight exceeded the average weight of women one inch taller, those cases as bad whose weight fell short of the average weight of women one inch shorter, all other cases have been classed as average It will be seen from the figures that the number of cases with average nutrition, as tested by this height and weight ratio is smaller than that of those with either good or bad nutrition This of course means that many average cases are included in the good and bad classes, and the effect is to understate rather than overstate the conclusions drawn from the good and bad classes, but if the average class had been enlarged by using a different method the number of cases with bad nutrition according to all three criteria would have been so small as to be valueless

In the light of the above three criteria of the state of a woman's nutrition all the cases available have been divided into classes as follow —

A 3, Cases in which the height and weight ratio, the observed state of nutrition, and the nutritional history are all bad

B 3 Cases in which the height and weight ratio, the observed state of nutrition, and the nutritional history are all average

C 3, Cases in which the height and weight ratio the observed state of nutrition, and the nutritional history are all good

A, Cases in which the height and weight ratio is bad

B, Cases in which the height and weight ratio is average

C, Cases in which the height and weight ratio is good

In this classification it will be noticed that most stress is laid on the height and weight ratio

Influence of the State of Nutrition of the Mother on the Death of the Child during or before Labour

The percentage of dead births in the case of women of bad nutrition (A 3) was 7 7 per cent. out of a total of 65 cases. If all the cases suffering from accidental hæmorrhage could have been weighed and measured the percentage would probably have been still higher In the class of average nutrition (B 3) the dead births are 1 1 per cent out of a total of 183 cases In the class of good nutrition (C 3) the percentage is 1 9 for 860 cases It is noticeable that though the class of lowest nutrition has by far the highest percentage of dead births the class of average nutrition has a lower percentage than the class of good nutrition This may be due to the increased weight of the babies in the class of good nutrition (*vide infra*) It has to be observed, however that the last-named class is much larger than the two others When the height and weight ratio alone is considered, the dead births are 2 1 per cent for 2280 cases of bad nutrition 1 1 per cent for 978 cases of average nutrition and 1 7 per cent for 1824 cases of good nutrition again a rather higher percentage for those of good than for those of average nutrition

Influence of the State of Nutrition of the Mother on Prematurity of Labour

In considering these figures it must again be remembered that many mothers with accidental hæmorrhage could not be weighed and measured Here 11·9 per cent of 59 labours were premature in the class of bad nutrition (A 3) In the class of average nutrition (B 3) 2 7 per cent out of 183 cases In the class of good nutrition (C 3) 1 3 per cent out of 848 cases For cases grouped by the height and weight ratio alone when the mothers nutrition was bad 5 3 per cent. were premature out of 2225 cases, when it was average 2 per cent out of 950 cases and when it was good 2 7 per cent out of 1795 cases

Influence of the State of Nutrition of the Mother on the Weight of the Full time Infant at Birth

For this purpose the birth weight has been considered to be above the average if it exceeded 8 lb to be of average value if between 6 lb and 8 lb and to be below the average if below 6 lb In the class of bad nutrition (A 3) out of 50 babies 10 per cent were above and 14 per cent below

the average weight In the class of average nutrition (B 3) out of 177 babies 12 4 per cent. are above and 11 3 per cent are below In the class of good nutrition (C 3) 40 1 per cent are above and 3 1 per cent. below out of 836 babies In this case a state of maternal nutrition above the average seems to have a very marked effect in increasing the baby s weight, whereas a bad state of nutrition on the part of the mother has less effect in decreasing it than might have been expected, since the figures for the class of bad nutrition and for that of average nutrition are not very widely removed from one another When the height and weight ratio alone is taken into consideration, out of 2108 babies of mothers with bad nutrition 17 7 per cent. were above the average weight and 11 8 per cent. below, out of 943 babies of mothers with average nutrition 23·4 per cent were above and 8 1 per cent below, and out of 1839 babies of mothers with good nutrition 34·6 per cent were above and 4 1 per cent. below

Influence of the State of Nutrition of the Mother on Post natal Mortality of Infants

Out of 3693 babies born in the London hospitals 2 1 per cent died during the first ten days of life If, however, those cases are excluded to which the height and weight ratio could not be applied in which the mother s malnutrition was due to disease, or in which the baby died as the result of injury malformation, or syphilis, there remain 3015 babies, of whom 1 per cent died As contrasted with this, out of 45 babies born in London of mothers with bad nutrition (A 3) 6 66 per cent died, out of 184 babies of mothers whose state of nutrition was average (B 3) 0 5 per cent died, and out of 328 babies of mothers with good nutrition (C 3) 0 3 per cent died Where the height and weight ratio alone was bad the death rate was 1 3 per cent for 1177 babies, where it was average 0 5 per cent. for 589 babies, and where it was good 1 per cent. for 1249 babies In the Dublin hospitals during the first eight days of life the death rate for all the 2439 babies was 2 5 per cent, and for the 1708 cases which could be classified 0 3 per cent On the other hand the death rate for the 12 Dublin babies of mothers with bad nutrition (A 3) was 8 3 per cent, where the mother's state of nutrition was average (B 3) none of the 8 babies died, where it was good (C 3) 0 8 per cent of 512 babies died When the height and weight ratio alone is considered, 0 9 per cent of 934 babies of mothers with bad height and weight ratio died, 0 4 per cent of 241 babies born of mothers with average height and weight ratio, and 0 8 per cent of 533 babies born of mothers with good height and weight ratio

Influence of the State of Nutrition of the Mother on the Progress of the Child after Birth

For the purpose of ascertaining the progress of the babies after birth their weights on the tenth day in the case of London babies and on the eighth day in the case of Dublin babies (since the Dublin babies were not as a rule, kept in hospital after the eighth day) have been compared with their birth weights, and the change in weight has been contrasted with the average weight curve given by Holt.[1] The condition has been labelled 'satisfactory' if the progress has been equal to or better than that shown on this curve In all other cases it has been labelled unsatisfactory or the death of the child has been recorded Separate tables have been made out for those babies who were fed entirely on the breast for those who were fed entirely artificially and for those fed partly on the breast and partly artificially (mixed fed) Those cases have been excluded in which the mothers malnutrition was due to disease and those in which the baby died or failed to thrive as the result of injury, malformation or syphilis Twins also have been excluded Premature babies have been tabulated separately but they were too few in number to afford data for conclusions of any value

To take first the *full time babies fed entirely on the breast* in the London hospitals there were 25 babies of mothers with bad nutrition (A 3) of these 64 per cent progressed satisfactorily and 36 per cent failed to thrive None died When the mothers nutrition was average (B 3) out of 103 babies 61 1 per cent flourished 33 per cent failed to thrive and 0 9 per cent died When the mothers nutrition was good (C 3) out of 251 babies 70 1 per cent flourished 29 9 per cent failed to thrive and none died When the cases are classified by the mothers' height and weight ratio alone, of 818 babies born in London of mothers whose height and weight ratio was bad, 65 9 per cent flourished, 33 7 per cent failed to thrive, and 0 4 per cent died. When the mothers' height and weight ratio was average out of 418 babies 62 2 per cent flourished, 37 5 per cent failed to thrive, and 0 2 per cent died When the height and weight ratio was good, of 836 babies 63 2 per cent flourished, 36 6 per cent failed to thrive, and 0 2 per cent died The Dublin cases in the classes of bad and average nutrition were so few that conclusions can hardly be drawn from them Moreover, it is noticeable that mixed breast and artificial feeding seems to be resorted to much more readily in London, when the baby does not seem to be thriving, than in Dublin Possibly this is partly due to the fact that the London babies stay longer in hospital, so that their progress can be better gauged

To the figures for the *full-time babies fed partly on the breast and partly artificially* the same criticisms, of course apply and the Dublin cases are so few as to be almost valueless There were only 9 full time babies of this kind in London whose mothers' nutrition was bad (A 3) Of these, 33 3 per cent flourished 55 5 per cent failed to thrive, and 11 1 per cent. died When the mothers' nutrition was average (B 3), out of 66 babies 42 4 per cent flourished, 57 6 per cent failed to thrive and none died. When the mothers' nutrition was good (C 3), out of 58 babies 32 8 per cent flourished, 67 2 per cent failed to thrive, and none died. Of the London babies, when the mothers' height and weight ratio was bad 30 4 per cent flourished, 68 4 per cent failed to thrive, and 1 3 per cent died out of 237 babies Similarly, when the height and weight ratio was average the figures are 35 9, 64, and 0 per cent for 142 babies, and 30 3, 69 4, and 0 3 per cent when the height and weight ratio was good

The numbers of the *full time babies who were fed entirely artificially* were too few to allow of any useful deductions being drawn

With regard to the *infantile death rate before lactation was established* the combined figures for London and Dublin give 51 babies whose mothers' nutrition was bad (A 3) with a death rate of 2 per cent 184 babies of mothers with average nutrition (B 3) with a death rate of 0 and 827 babies of mothers whose nutrition was good (C 3) with a death rate of 0 2 per cent When the height and weight ratio alone is considered the death rate was approximately the same for all classes

From the foregoing figures it does not appear that the state of nutrition of the mother at the time of labour and during her pregnancy has any marked influence on the progress of "mixed fed" and breast fed babies during the first eight or ten days of life On the other hand the death rate of babies before lactation is established may perhaps be higher when their mothers are really badly nourished It must be remembered that from the time of labour until their discharge from hospital all the mothers were presumably receiving an ample diet.

Influence of the State of Nutrition of the Mother on her Capability of Suckling

The percentage of breast-fed babies is very much higher in Dublin than in London, and this quite apart from the question of mixed feeding since the percentage of artificially fed babies—that is of mothers who had no milk at all—is much higher in London than in Dublin Both in London and in Dublin however the state of the mother s nutrition does seem to have a definite influence on her capability of suckling Of a total of 3638 babies born in London 73 21 per cent were breast fed 24 32 per cent were mixed fed, and 2 47 per cent artificially fed Of 2352 Dublin babies 93 51 per cent were breast fed 1 23 per cent were mixed fed and 0 25 per cent artificially fed These figures exclude babies who died before lactation was established and those who were not breast-fed owing to extraneous causes, such as tubercle syphilis sepsis sore nipples illegitimacy &c Of the 38 babies in London whose mothers nutrition was bad (A 3) 65 8 per cent. were breast-fed 28 4 per cent mixed fed and 5 3 per cent artificially fed The e figures have to be compared with 62 7 36 7 and 0 6 per cent for 153 babies whose mothers nutrition was average (B 3), and with 73 5 17 9 and 2 5 per cent for 318 babies whose

[1] See the average table of Holt quoted on p 103

AN INVESTIGATION INTO SOME OF THE

EFFECTS OF THE STATE OF NUTRITION OF THE MOTHER DURING PREGNANCY AND LABOUR ON THE CONDITION OF THE CHILD AT BIRTH AND FOR FIRST FEW DAYS OF LIFE

BY G F DARWALL SMITH, M A., B M, B CH OXON, F R C S ENG,

ASSISTANT OBSTETRIC PHYSICIAN ST GEORGE'S HOSPITAL, LONDON
PHYSICIAN GENERAL LYING-IN HOSPITAL, LAMBETH S E.
SURGEON TO OUT PATIENTS SAMARITAN FREE HOSPITAL
FOR WOMEN MARYLEBONE ROAD N W

THIS investigation embodies the results of an attempt to estimate some of the effects of the state of a mother s nutrition during pregnancy and at the time of labour on the condition of her child at birth and during the first few days of life, as deduced from statistics obtained from the lying in hospitals of London and Dublin The total number of cases investigated was 6162 of which 3721 represented hospital experience in London and 2441 similar experience in Dublin The method adopted to obtain the statistics was to send out a number of printed cards to the hospitals, on each of which were entered the particulars of one case by the resident medical officer or registrar of the hospital The cases were not selected in any way The information thus obtained has been carefully classified and arranged to enable certain conclusions to be drawn if possible

The most difficult thing in the investigation has been to determine what was the state of a mother's nutrition so that comparisons might be made between different cases An attempt has been made to arrive at this in three ways

1 The weights and heights of the patients have been taken soon after they came to the hospitals and before delivery From these data tables were constructed showing the average weight of a mother for any given height the London and Dublin mothers being treated separately, because it was found that the women of these two cities showed a distinct difference in this respect A similar height and weight ratio was also taken after excluding all those cases which were shown by criteria 2 and 3, mentioned below, to be in a state of either extremely good or extremely bad nutrition, but the average figures so obtained differed so little from those obtained by the first method that the state of nutrition, so far as this criterion is concerned, has been deduced from the former tables only Unless there were at least 50 women of any given height from whom the average weight could be computed, the cases were discarded as useless for the purpose of this investigation The maximum number of women of any given height in London in the series under examination was 580, with a height of 5 ft 2 in and in Dublin 325 with a height of 5 ft 2 in The average figures obtained in this way were checked by comparing the weights at labour of 52 women with their weights two months later when involution was presumably complete In this way the average loss of weight was ascertained, and by adding this amount to the average weight for any given height of a woman in ordinary circumstances as given in Hutchison s tables a result was obtained which agreed very closely with the average figures obtained from the cases weighed at the time of labour It may be noted in passing that the women whose state of nutrition was good according to criteria 2 and 3 appeared to lose more weight during the puerperium than did those whose state of nutrition was bad according to the same criteria but the total number investigated in this way was too small to allow any certain conclusion to be drawn on this point

2. The second way in which an attempt was made to arrive at the state of nutrition of a woman at the time of labour was by getting the medical officer in charge of her to record his impression as to whether this was good average or bad on the card referring to her case.

3 The third way was by having recorded on the cards each woman s own account of the amount of food she had been able to obtain during her pregnancy as being good average or bad

It was noticeable that a large percentage of those women whose state of nutrition was bad according to criteria 2 and 3 could not be weighed and measured when they arrived at hospital, owing either to the advanced state of labour or to some complication such as accidental hæmorrhage Cases in which the malnutrition was due to disease have been excluded

As regards the height and weight ratio those cases have been classed as good whose weight exceeded the average weight of women one inch taller, those cases as bad whose weight fell short of the average weight of women one inch shorter, all other cases have been classed as average It will be seen from the figures that the number of cases with average nutrition, as tested by this height and weight ratio, is smaller than that of those with either good or bad nutrition This of course means that many average cases are included in the good and bad classes, and the effect is to understate rather than overstate the conclusions drawn from the good and bad classes, but if the average class had been enlarged by using a different method the number of cases with bad nutrition according to all three criteria would have been so small as to be valueless

In the light of the above three criteria of the state of a woman's nutrition all the cases available have been divided into classes as follow —

A 3, Cases in which the height and weight ratio the observed state of nutrition, and the nutritional history are all bad

B 3, Cases in which the height and weight ratio the observed state of nutrition, and the nutritional history are all average

C 3, Cases in which the height and weight ratio, the observed state of nutrition, and the nutritional history are all good

A, Cases in which the height and weight ratio is bad

B, Cases in which the height and weight ratio is average

C, Cases in which the height and weight ratio is good

In this classification it will be noticed that most stress is laid on the height and weight ratio

Influence of the State of Nutrition of the Mother on the Death of the Child during or before Labour

The percentage of dead births in the case of women of bad nutrition (A 3) was 7 7 per cent out of a total of 65 cases If all the cases suffering from accidental hæmorrhage could have been weighed and measured, the percentage would probably have been still higher In the class of average nutrition (B 3) the dead births are 1 1 per cent out of a total of 183 cases In the class of good nutrition (C 3) the percentage is 1 9 for 860 cases It is noticeable that though the class of lowest nutrition has by far the highest percentage of dead births the class of average nutrition has a lower percentage than the class of good nutrition This may be due to the increased weight of the babies in the class of good nutrition (*vide infra*) It has to be observed, however that the last-named class is much larger than the two others When the height and weight ratio alone is considered the dead births are 2 1 per cent for 2280 cases of bad nutrition 1 1 per cent for 978 cases of average nutrition and 1 7 per cent for 1824 cases of good nutrition again a rather higher percentage for those of good than for those of average nutrition

Influence of the State of Nutrition of the Mother on Prematurity of Labour

In considering these figures it must again be remembered that many mothers with accidental hæmorrhage could not be weighed and measured Here 11·9 per cent of 59 labours were premature in the class of bad nutrition (A 3) In the class of average nutrition (B 3) 2 7 per cent out of 183 cases In the class of good nutrition (C 3) 1 3 per cent out of 848 cases For cases grouped by the height and weight ratio alone when the mothers nutrition was bad 5 3 per cent were premature out of 2225 cases, when it was average 2 per cent out of 969 cases and when it was good 2 7 per cent out of 1795 cases

Influence of the State of Nutrition of the Mother on the Weight of the Full time Infant at Birth

For this purpose the birth weights have been considered to be above the average if they exceeded 8 lb to be of average value if between 6 lb and 8 lb and to be below the average if below 6 lb In the class of bad nutrition (A 3) out of 50 babies 10 per cent were above and 14 per cent below

the average weight In the class of average nutrition (B 3) out of 177 babies 12·4 per cent are above and 11 3 per cent are below In the class of good nutrition (C 3) 40 1 per cent are above and 3 1 per cent. below out of 836 babies In this case a state of maternal nutrition above the average seems to have a very marked effect in increasing the baby s weight, whereas a bad state of nutrition on the part of the mother has less effect in decreasing it than might have been expected, since the figures for the class of bad nutrition and for that of average nutrition are not very widely removed from one another When the height and weight ratio alone is taken into consideration, out of 2108 babies of mothers with bad nutrition 17 7 per cent. were above the average weight and 11 8 per cent below, out of 943 babies of mothers with average nutrition 23 4 per cent were above and 8 1 per cent below, and out of 1839 babies of mothers with good nutrition 34 6 per cent were above and 4 1 per cent below

Influence of the State of Nutrition of the Mother on Post natal Mortality of Infants

Out of 3693 babies born in the London hospitals 2 1 per cent died during the first ten days of life If, however, those cases are excluded to which the height and weight ratio could not be applied, in which the mother s malnutrition was due to disease, or in which the baby died as the result of injury, malformation, or syphilis, there remain 3015 babies, of whom 1 per cent died As contrasted with this, out of 45 babies born in London of mothers with bad nutrition (A 3) 6 66 per cent died, out of 184 babies of mothers whose state of nutrition was average (B 3) 0 5 per cent died, and out of 328 babies of mothers with good nutrition (C 3) 0 3 per cent. died Where the height and weight ratio alone was bad the death rate was 1 3 per cent for 1177 babies, where it was average 0 5 per cent for 589 babies, and where it was good 1 per cent. for 1249 babies In the Dublin hospitals during the first eight days of life the death rate for all the 2439 babies was 2 5 per cent, and for the 1708 cases which could be classified 0 3 per cent. On the other hand the death rate for the 12 Dublin babies of mothers with bad nutrition (A 3) was 8 3 per cent, where the mother s state of nutrition was average (B 3) none of the 8 babies died, where it was good (C 3) 0 8 per cent. of 512 babies died When the height and weight ratio alone is considered, 0 9 per cent of 934 babies of mothers with bad height and weight ratio died, 0 4 per cent of 241 babies born of mothers with average height and weight ratio, and 0 8 per cent of 533 babies born of mothers with good height and weight ratio

Influence of the State of Nutrition of the Mother on the Progress of the Child after Birth

For the purpose of ascertaining the progress of the babies after birth their weights on the tenth day in the case of London babies and on the eighth day in the case of Dublin babies (since the Dublin babies were not as a rule, kept in hospital after the eighth day) have been compared with their birth weights, and the change in weight has been contrasted with the average weight curve given by Holt.[1] The condition has been labelled "satisfactory" if the progress has been equal to or better than that shown on this curve In all other cases it has been labelled unsatisfactory or the death of the child has been recorded Separate tables have been made out for those babies who were fed entirely on the breast for those who were fed entirely artificially and for those fed partly on the breast and partly artificially (mixed fed) Those cases have been excluded in which the mothers malnutrition was due to disease and those in which the baby died or failed to thrive as the result of injury malformation or syphilis Twins also have been excluded Premature babies have been tabulated separately but they were too few in number to afford data for conclusions of any value

To take first the *full time babies fed entirely on the breast* in the London hospitals there were 25 babies of mothers with bad nutrition (A 3) of these 64 per cent progressed satisfactorily and 36 per cent failed to thrive None died When the mothers nutrition was average (B 3) out of 103 babies 61 1 per cent flourished 33 per cent failed to thrive and 0 9 per cent died When the mothers nutrition was good (C 3) out of 251 babies 70 1 per cent flourished 29 9 per cent failed to thrive, and none died When the cases are classified by the mothers height and weight ratio alone, of 818 babies born in London of mothers whose height and weight ratio was bad, 65 9 per cent flourished, 33 7 per cent failed to thrive, and 0 4 per cent died. When the mothers' height and weight ratio was average out of 418 babies 62 2 per cent flourished, 37 5 per cent failed to thrive, and 0 2 per cent died. When the height and weight ratio was good, of 836 babies 63 2 per cent flourished, 36 6 per cent failed to thrive, and 0 2 per cent died The Dublin cases in the classes of bad and average nutrition were so few that conclusions can hardly be drawn from them Moreover, it is noticeable that mixed breast and artificial feeding seems to be resorted to much more readily in London, when the baby does not seem to be thriving, than in Dublin. Possibly this is partly due to the fact that the London babies stay longer in hospital, so that their progress can be better gauged

To the figures for the *full-time babies fed partly on the breast and partly artificially* the same criticisms, of course apply, and the Dublin cases are so few as to be almost valueless There were only 9 full time babies of this kind in London whose mothers' nutrition was bad (A 3) Of these 33 3 per cent flourished 55 5 per cent failed to thrive, and 11 1 per cent died When the mothers' nutrition was average (B 3), out of 66 babies 42 4 per cent flourished, 57 6 per cent failed to thrive, and none died. When the mothers' nutrition was good (C 3), out of 58 babies 32 8 per cent flourished, 67 2 per cent failed to thrive, and none died Of the London babies, when the mothers' height and weight ratio was bad 30 4 per cent flourished, 68 4 per cent failed to thrive, and 1 3 per cent died out of 237 babies Similarly when the height and weight ratio was average the figures are 35 9, 64 and 0 per cent for 142 babies, and 30 3, 69 4 and 0 3 per cent when the height and weight ratio was good

The numbers of the *full time babies who were fed entirely artificially* were too few to allow of any useful deductions being drawn

With regard to the *infantile death rate before lactation was established* the combined figures for London and Dublin give 51 babies whose mothers' nutrition was bad (A 3) with a death rate of 2 per cent 184 babies of mothers with average nutrition (B 3) with a death rate of 0 and 827 babies of mothers whose nutrition was good (C 3) with a death rate of 0 2 per cent When the height and weight ratio alone is considered the death rate was approximately the same for all classes

From the foregoing figures it does not appear that the state of nutrition of the mother at the time of labour and during her pregnancy has any marked influence on the progress of "mixed fed" and breast-fed babies during the first eight or ten days of life On the other hand, the death rate of babies before lactation is established may perhaps be higher when their mothers are really badly nourished It must be remembered that from the time of labour until their discharge from hospital all the mothers were presumably receiving an ample diet

Influence of the State of Nutrition of the Mother on her Capability of Suckling

The percentage of breast-fed babies is very much higher in Dublin than in London, and this quite apart from the question of mixed feeding since the percentage of artificially fed babies—that is of mothers who had no milk at all—is much higher in London than in Dublin Both in London and in Dublin however, the state of the mother s nutrition does seem to have a definite influence on her capability of suckling Of a total of 3838 babies born in London 73 21 per cent were breast fed 24 32 per cent. were mixed fed and 2 47 per cent artificially fed Of 2352 Dublin babies 93 51 per cent were breast fed 1 23 per cent were mixed fed and 0 25 per cent artificially fed These figures exclude babies who died before lactation was established and those who were not breast-fed owing to extraneous causes, such as tubercle syphilis sepsis sore nipples illegitimacy &c Of the 38 babies in London whose mothers nutrition was bad (A 3) 65 8 per cent were breast fed 28 4 per cent mixed fed and 5 3 per cent artificially fed The figures have to be compared with 62 7, 35 7 and 0 6 per cent for 153 babies whose mothers nutrition was average (B 3), and with 73 5 17 9 and 2 5 per cent for 318 babies whose

mothers' nutrition was good (C 3) Of 11 babies in Dublin whose mothers' nutrition was bad (A 3), 72 7 per cent were breast-fed, 18 2 per cent mixed fed, and 9 1 per cent artificially fed All 7 babies whose mothers' nutrition was average (B 3) were breast-fed Of 499 babies whose mothers' nutrition was good (C 3), 99 6 per cent were breast-fed, 0 4 per cent mixed fed, and 0 artificially fed

Influence of the Mother's Capability of Suckling on the Mortality and Progress of the Child after Birth

Out of 2539 full time breast-fed babies in London progress was good in 64 per cent, bad in 36 per cent, and 0 1 per cent died Similarly, for 2170 Dublin babies the per centages are 56 2, 43 7, and 0 2 For mixed fed babies in London the figures are 816—30 4, 70, and 0 per cent, in Dublin 20—15, 80, and 5 per cent Here, again, is seen the greater readiness to adopt mixed feeding in London than in Dublin As regards artificially fed babies the figures for London are 81—17 3, 81 5, and 1 2 per cent, for Dublin 16—12 5, 87 5, and 0 per cent The same effect was evident in the case of premature babies These figures only express the well known relative advantages of breast feeding, mixed feeding, and artificial feeding

General Conclusions

The foregoing statistics do not absolutely prove anything, but they seem to suggest the following conclusions

A state of bad nutrition of the mother at the time of labour due to insufficient food (1) greatly increases the per centage of dead births, (2) greatly increases the percentage of premature births, (3) slightly decreases the average weight of the full time baby at birth, (4) definitely increases the post-natal infantile mortality, (5) has little, if any, effect during the first eight or ten days on the progress of babies who live during that time, and (6) possibly increases the death rate of babies during the first three or four days of life

A state of good nutrition of the mother at the time of labour, on the other hand, (1) considerably increases the average weight of the full time baby at birth, and (2) increases the percentage of mothers who are able to suckle during the first eight or ten days of the puerperium, quite apart from any effect from the use of an ample diet during this time

The figures also suggest that on the whole a state of average nutrition of the mother is the most favourable condition

My best thanks are due to the following medical officers for their help in the collection of these statistics Dr Sydney Vosper, Dr Rutherford Smith, Dr Weston, Mr J van Schalkwijk, and Mr Lionel Colledge, of the British Lying in Hospital, Dr J D Barris of the City of London Lying in Hospital, Dr E S Cooke Dr M D Hancock, and Dr Ievers, of the Clapham Maternity Hospital, Dr A Lionel Smith, Dr G N B Sebastian Dr P F Wilson, Dr Dudley Corbett and Dr W L Pink, of the General Lying in Hospital, Dr Clifford White and Dr J B Banister, of Queen Charlotte's Hospital, Dr V J McAllister of the Coombe Lying in Hospital, Dublin, and Dr Bethel Solomons and Dr J R Freeland, of the Rotunda Hospital, Dublin I am much indebted too, to the committees of management of the foregoing hospitals for their kind permission to collect and publish the statistics contained in this investigation

Grosvenor street W

CENTRAL MIDWIVES BOARD FOR SCOTLAND —The Board was finally constituted on June 27th by order of the Privy Council The names are the same as those provisionally appointed and announced in our issue of Feb 12th p 366, with the addition of Miss Alice Helen Turnbull and Miss Isabella Lewis Scrimgeour, appointed by the Lord President of the Council

A FREE CONVALESCENT HOME FOR DELICATE CHILDREN —A convalescent home has been opened at "Woodbine" Sidmouth Devon, for delicate children of needy naval and military officers and others whose incomes have suffered in the present war by Mrs Cowley wife of Mr A E Cowley D Litt, sub-librarian of the Bodleian Library, Oxford The children must be between the ages of 5 and 10 (or 5 and 8 in the case of boys) and are to stay for a period of four weeks The house is situated four minutes from the sea and is in charge of a competent matron and nurse The stay in the home is entirely free of charge and travelling expenses are also defrayed by Mrs Cowley to whom application should be made at 94 St Aldates Oxford A doctor's recommendation should accompany the application

A REPORT ON THE CASUALTIES FROM THE JUTLAND COAST ACTION RECEIVED AT ROYAL NAVAL HOSPITAL, SOUTH QUEENSFERRY

BY W M ASH, M B, B S LOND,
TEMPORARY SURGEON, ROYAL NAVY
AND
C P G WAKELEY, M R C S, L R C P LOND,
TEMPORARY SURGEON, ROYAL NAVY

THIS hospital received 110 badly wounded cases, comprising—shell wounds 62, burns, 42, suffering from the effects of fumes, 4, and from severe shock, 2

The shell wounds were for the most part multiple, some cases had as many as 20 different lesions, varying from compound fractures to small punctured wounds caused by shell splinters Almost without exception these were markedly septic on arrival, being less than 48 hours after injury, in spite of the fact that excellent treatment had been administered on board ship For the greater part the injuries were to limbs In 3 cases only were the eyes affected, in one the eye was entirely disorganised and septic, enucleation being necessary, another was an incised wound of the sclerotic about half an inch long at a tangent to the corneo sclerotic junction, the third was a shell splinter which had perforated the lower lid and become embedded in the sclerotic coat On removal it left an ulcer which quickly cleared up Considering the confined space and the power of the high explosives, it is remarkable that there were so few eye lesions Of abdominal lesions there were 3 also, 2 of these were suffering from severe wounds elsewhere and survived a short time only, the other man had a perforated wound with local peritonitis, but is doing extremely well at the time of writing

Fractures were numerous for the greater part compound—in fact, a simple fracture was rare, some patients had as many as three compound fractures Some, again had one or two inches of bone and large masses of muscle missing, vessels and nerves being exposed All wounds were very septic In many cases amputation was the only resort All our amputations were performed by the circular flapless method To quote Captain M Fitzmaurice Kelly, R A M C "It saves life length of limb, and the risk of secondary hæmorrhage is lessened It arrests the spread of infection and it is possible where no other method is possible"[1]

The prime object in the treatment of these cases was to combat the sepsis One of us used eusol, the other favoured continuous saline irrigation, and the results up to the present have been equally successful Both have their advantages Undoubtedly eusol is an excellent application in very early cases—in fact second to none, but when once sepsis has gained a footing continuous saline irrigation seems to meet the requirements does away with painful dressings and is particularly non irritating to the injured and exposed periosteum which is so easily destroyed by the application of antiseptics Again in these cases secondary hæmorrhage is a very real danger and is much more likely to occur from the frequent application of dressings than with a continuous irrigation, also we consider that much as eusol stimulates the growth of granulation tissue, saline stimulates more We have observed that the granulation tissue produced by saline does not bleed so profusely on the slightest touch as that produced by eusol

We endeavoured as much as possible to avoid wiring or plating such septic fractures but in one case this was necessary as in no other way could the fragments be kept away from the popliteal vessels As we have pointed out before the adequate treatment of sepsis is the primary indication therefore a splint which admits of easy dressing, and as well as effective immobilization is essential In case of fractured humerus we found a Thomas's knee splint extension met both these requirements especially as the men we had to treat were of the pluck type Compound fractures around the wrist and ankle joints were kept in metal splints and immobilized in continuous saline baths

[1] Brit Journal of Surgery [illegible] The Lancet [illegible] 1915 p 15

The ordinary wooden splints, such as anterior and posterior splints for the forearm, back splint with foot-piece and side splints for the leg, were quite useless, as all the cases had multiple wounds which required the removal of splints for dressings and would not allow pressure being applied

As regards *burns*, these were plentiful and extensive Since these were due to sudden flashes, it was rare to find a burn of more than a third degree, and equally rare to find them affecting other parts of the body than the hands and face — i e , the exposed parts Any burn which is later found to be more than the third degree is generally due to the application of dressings With removal of dressings a thin superficial layer of granulation tissue epithelium is also removed , if this is continued it is easy to explain why burns become deeper In our opinion the treatment of burns should be expectant as well as immediate This treatment is not new fangled, nor is it a war fad ' We have used it in civil practice before, chiefly in young children , we used it in the cases from the Dogger Bank action with equally excellent results

FIG 1

Cordite burn of face A B at commencement of treatment

FIG 2

After three weeks' treatment

The stages of burns are (*a*) Stage of shock , (*b*) stage of sloughing , (*c*) stage of separation of the slough , (*d*) stage of scarring On receipt of a case of burns the immediate treatment is obviously to treat shock Treatment can be summed up briefly—rest warmth and morphia, local treatment as for any other septic burn We open any blebs and apply picric acid , this is both antiseptic and anæsthetic If possible instead of this we immerse the patient in a warm saline bath especially if the body is affected If is the all important factor , this we have already fully dealt with. In the second stage we have to treat sepsis and prevent internal complications, such as bronchitis, diarrhœa and vomiting, duodenal ulcer, &c In the treatment of sepsis we use chiefly hypertonic saline solution for burns of the extremities, if possible as a bath, as this serves the double purpose of keeping away air and cleansing the wound To the face if it is impossible to apply a continuous saline douche so as to cover completely the whole surface we apply an oil consisting of menthol, 2 gr , eucalyptus oil, 3 min , carron oil to the ounce We on no account apply a dressing , the oil is applied from a bowl kept at the bedside, from which it is carried to the face on cotton wool This is applied at frequent intervals the eyes at the same time being irrigated with boric lotion At least three or four times a day the face is slightly sponged with saline so as to remove any pus which may be present and the greater part of the oil This ensures that the oil is kept fresh and that no pus is allowed to be imprisoned under scabs, which quickly form if this precaution is not taken If this is done frequently it is the simplest matter and even the slightest hæmorrhage is avoided, and above all any little islands of epithelium from which the new skin will be produced are preserved We have found under this treatment that a burn that has been carefully examined and found to be, say, of the third degree will be no deeper when examined four or five days later

FIG 3

Cordite burn face C D at commencement of treatment

FIG 4

After three weeks treatment.

We do not claim that this treatment is easy and quick , on the other hand, it requires much patience and time but the results amply repay one. At the end of seven to ten days the wound is usually quite clean and the epithelium is very actively growing over the granulating surface At this stage scarlet R ointments may be used with benefit By this method we find that we never get the hæmorrhage in the third or "suppurating stage" and the fourth or "scarring stage" is seldom seen with burns of the depth of those caused by shell explosion or by the flash of cordite which have been the cause of all the burns we have had to

shock is very marked we give a continuous saline with a small amount of adrenalin in it Injection of pituitary body or citrate of ergot is usually good but acts for a short time only , strychnine and alcohol we avoid If picric acid has been used this [illegible] until shock has completely passed off Now immediately [illegible] give place to expectant treatment

[illegible] of expectant treatment naturally proceeds the [illegible] Why are the results so [illegible] In the first stage shock

treat Moreover, the frequent removal of all the products of inflammation prevents the absorption of toxin or toxins, whatever it may be that causes the internal complications mentioned above It is thus that our treatment is both immediate and expectant

Our thanks are due to Fleet-Surgeon P H M Star R N, for his help and for the photographs of burns which he so kindly took for us

SOME OF THE USES AND ABUSES OF MASSAGE

BY E BELLIS CLAYTON, M B, B C CANTAB,

CAPTAIN, R A M C. (T) MEDICAL OFFICER IN CHARGE OF ELECTRICAL AND MASSAGE DEPARTMENT, 4TH LONDON GENERAL HOSPITAL AND KING S COLLEGE HOSPITAL.

Now that massage is used to such a large extent in the military hospitals it seems necessary to point out some of the dangers of using it indiscriminately in all cases Thus to give massage continuously for months to a patient with a functional paralysis would tend to keep up the disability rather than cure it, because the massage continually reminds the patient of his condition On the other hand, where a nerve is injured and the muscles it supplies are paralysed massage is strongly indicated to prevent atrophy and contractures The following are the treatments which I have found most successful for some of the commoner disabilities that are treated in military hospitals

1 *Functional Paraplegia*

In many cases these patients have a considerable amount of rigidity of the back and legs, and this prevents them from sitting up It is perfectly hopeless to try to cure them with massage From the start efforts should be made to teach the patient to stand and walk At first two strong assistants are required to hold him up and usually he cannot move one leg in front of the other Massage and faradism should be given for the first week or two in addition to the walking exercises, in order to stimulate his muscles and persuade him that he is being helped with treatment But these must be given up at an early date whether they succeed or not, as they tend after a time to hinder progress Frequently the patient learns to stand and walk with assistance before the rigidity in his back has passed off sufficiently to allow him to sit up As soon as possible he should practise walking by himself in some walking machine Here we have two long parallel bars at such a height and such a width apart that the patient can rest his arms on them comfortably while trying to get his balance The next stage is to learn to walk in this apparatus without using his arms for support Finally, when made to walk in the open in all probability he will tend to walk in a circle, but with further training he should learn to walk properly During all this time he is given exercises on his bed or in a chair for his limbs and trunk, and it is very essential for the masseuse to be always very optimistic and suggest to him in various ways that he is improving daily It is a great mistake to try to get rid of the rigidity and restore muscular power before getting him on his feet Massage may be continued for months with this object in view without getting any result

2 *Paralysed Muscles*

(*a*) *Due to nerve injuries* —The paralysed muscles should be treated with stimulating massage and galvanism Passive movements must be given daily to the joints to prevent stiffness, especially if splints are being worn to relax the paralysed muscles In addition to this the slightest signs of return of power must be encouraged by giving assisted and active movements to these muscles until they are sufficiently strong for the patient to do exercises by himself He should then continue with regular exercises until the normal power has returned

(*b*) *Functional* —These cases must be treated on the same lines as a functional paraplegia A little mas[illegible] faradism at first to stimulate the muscles and sug[illegible] patient that he is being treated If this fails [illegible] time the treatment [illegible] any active movement after a [illegible] Frequent [illegible] be discontinued and somethi[illegible] little active [illegible] faradism the patient finds [illegible] and devel[illegible] ment. This can be gradu[illegible] power r[illegible] making him practise moveme[illegible]

The success or failure of these cases depends to a large extent on the masseuse herself She must impress on the patient that the treatment is really effecting a cure Other functional conditions should be treated on the same lines Massage if used, is merely to act by suggesting to the patient that he is being treated and recovering

3 *Flabby Heart*

This may either occur after a long illness, such as typhoid fever, or may be the "soldier s heart" due to overstrain These cases respond well to graduated exercises In the early stage when the patient is still in bed massage, in the form of kneading, to the limbs should be also given Breathing exercises form an important part of the treatment, and the patient should be taught to breathe slowly and evenly while performing the other movements. In almost every case the pulse rate, if rapid at first, falls during and after the exercises, and it also becomes stronger The following is an example of a scheme of treatment ordered for a patient who is still confined to bed (1) Six deep breaths, (2) arm kneading followed by active elbow flexion and extension (six times), (3) six deep breaths, (4) leg kneading followed by active ankle flexion and extension (six times), (5) six deep breaths This treatment is gradually increased as the patient becomes stronger, body exercises are added, and the massage is discontinued Finally the patient walks up a certain number of stairs daily under the supervision of the masseuse in addition to the other exercises

4 *Joint Injuries*

(*a*) *After adhesions have been broken down* —The joint is usually swollen, stiff, and painful for the first few days Passive movements should be commenced the following day to prevent adhesions re forming Gentle soothing stroking down the limb, performed by a second masseuse for five minutes before and while the joint is being moved, will often prevent painful contractions of the muscles and so allow of a freer range of movement No forcing must be allowed The movements should be very slow and gentle, and the limb well supported so that the muscles can relax

(*b*) *Chronic traumatic synovitis* —For this condition exercises are strongly indicated Even if fluid reaccumulates they should be continued In addition massage can be given to the joint and the muscles which pass over it, and passive movements until the full range of movement of the joint is established The exercises should be performed twice a day Thus for a knee joint one would give knee flexion and extension (1) sitting and (2) standing The former exercise will be chiefly for the anterior thigh muscles and the latter for the posterior These exercises can be increased by fixing a weight on the patient's foot. Finally, he should do exercises with his weight on the disabled limb These exercises should be continued until the patient can hop round the room on his injured leg These same exercises should be given to all cases in which a cartilage has been removed from the knee before the patient returns to duty To try to redevelop the thigh muscles with massage only is perfectly hopeless but massage may be helpful in the earlier stages when the limb aches after very little exercise

It will be noticed that almost all these treatments end in exercises I consider this to be very important because muscles always atrophy after an injury in their neighbourhood But there is another very important reason If a patient is given massage for a long period and is not made to make an effort himself he is very liable to develop some functional disability To take a case, a patient who suffered from bad trench feet and had been treated for about six months without being allowed to walk began to develop a talipes varus and a tremor in his legs on active movement. He was made to walk at once and do exercises on his feet to stop this functional disability

Finally there are the cases which require no massage but simply careful examination to find the cause for the continuation of the disability and then some simple treatment for it

The following are two cases which were recently admitted to the 4th London General Hospital

Case 1 —The patient was admitted with a fixed hip, at [illegible] disability [illegible] He had been wounded through the [illegible] and had been treated with [illegible] walking exercises for a year with [illegible] go fa[illegible] It was found that the [illegible] O[illegible] [illegible] of the [illegible] all [illegible]

which the bullet had probably passed. He was given stretching movements for this muscle, and in a week was walking normally

CASE 2.—The patient had been shot in the head a year ago He had suffered from hemiplegia and was sent here for further massage On examination he was found to have recovered except for slight loss of sense of position His injury was over the Rolandic fissure He could not stand or walk, and this was apparently due to slight loss of the sense of position and fear of falling over He is doing Fränkel's exercises and learning to walk, and already in a week he has shown considerable improvement

These examples should suffice to show that careful discrimination is necessary not only in settling which cases should be given massage, but also in deciding the exact treatment to be given

Denmark Hill S E

AN EXPERIENCE OF GALYL AT ROYAL NAVAL HOSPITAL, CHATHAM

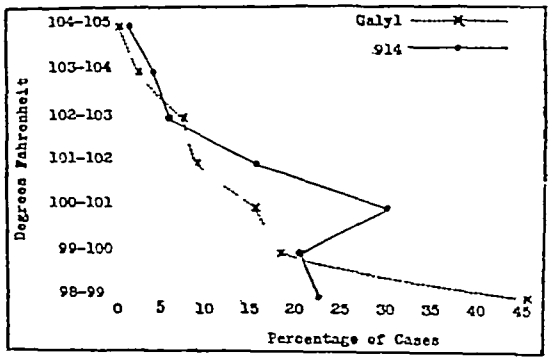
BY SHELDON F DUDLEY, M B, B S LOND, &C,
STAFF SURGEON R.N

AT the Royal Naval Hospital, Chatham, galyl has been substituted for neosalvarsan in the treatment of syphilis and about 1500 injections given It is compared with neosalvarsan of which drug I have had about a similar experience The laboratory work and injections on which this article is based have all been done by myself, using the same technique with both drugs thus eliminating personal equation in the results arrived at 0·4 gm. galyl and 0 9 gm neosalvarsan, the suggested equivalent doses have been used in all the cases that have been employed to obtain the numbers below Following the usual routine in the navy which has given excellent results with neosalvarsan, cases were given three intravenous injections of galyl at monthly intervals, with three intramuscular injections of gr 1 of mercury after each dose of the arsenical preparation

With regard to reaction following these two drugs, a comparison was made on the three commonest symptoms—rise of temperature headache, and vomiting The graph below contrasts the rise of temperature after a first injection of galyl and neosalvarsan It is based on 583 injections of galyl and 150 of neosalvarsan An example will easiest explain the reading of it 30 per cent of neosalvarsan cases may be expected to develop a temperature between 100°-101° F, whereas a similar rise of temperature is only to be expected in 15 6 per cent. of galyl cases In the same cases 18 per cent of those treated with galyl complained of headache while 39 3 per cent of those treated with neosalvarsan complained of the same thing Vomiting followed in 3·9 per cent of galyl injections and in 21 3 per cent where neosalvarsan was injected It will be seen that about half the galyl cases are followed by no rise of temperature as marked on a four hourly chart whereas only a quarter of the neosalvarsan cases escape without any rise of temperature The lesser toxicity of galyl is also very evident from the few injections that are followed by headache and vomiting as compared with those treated with neosalvarsan

It is my experience that reactions after second and third injections of either drug are far less common than after the first—for example in only 7 3 per cent galyl cases and 14 per cent 914 cases receiving a second intravenous injection did the temperature rise above 99° during the 24 hours following administration Vomiting and headache are exceptional after injections subsequent to the first

These common febrile reactions are probably caused by the liberation of the endotoxins of the treponema pallidum, otherwise one would expect them to be as frequent after the second and third doses as after the first Another observation confirms this 53 cases of "tertiary" syphilis were given a first injection of galyl, 40, or 77 5 per cent, had absolutely no reaction, as against 45 5 per cent all types of syphilis (See graph) In a parallel series of 33



cases treated with neosalvarsan 26, or 68 4 per cent, had no reaction, as against 22 7 per cent of all types of syphilis This comparative freedom of late syphilis from reaction is presumably due to the fact that late lesions are often single and contain fewer and more resistant spirochetes than are present in the early generalised stages of the disease, hence less endotoxin is liberated by the drugs to cause a reaction

As the Wassermann is essentially a quantitative test, a series of comparative positive and negative results are of little value unless absolutely the same technique with carefully standardised materials is used in both series, the reactions the table shown below is based on fulfil this condition, so are strictly comparative, if of little value otherwise

The table explains itself, except that late secondary syphilis means cases of over a year from infection "At start means at the time the treatment started, "one month later," when the case has had one arsenical intravenous injection and 3 grains of mercury, "two months later," when the case has had two arsenical injections and 6 grains of intramuscular mercury

Taking the results as a whole, neosalvarsan seems to have slightly more power in producing a negative Wassermann than galyl It is not intended to convey the idea that these Wassermanns taken during treatment when the patient is saturated with mercury and arsenic are permanent How far a two years mercurial course may render them so I do not know, anyhow, I have seen many negative Wassermanns become positive a month or two after leaving off treatment even after a two years' course of mercury

A point the table shows well is the difficulty of obtaining a negative reaction in the late stages of the disease. In 34 galyl cases in which the reaction was negative at the start of treatment, 7 became positive at the time of the third test whereas only 1 neosalvarsan case became positive out of 27 negative to start with Thus, galyl used in this way and in these doses has less power than neosalvarsan to prevent the negative reactions of early cases becoming positive

An attempt was made to compare the action of the drugs on the treponemata in the sores Twelve syphilitic cases in whose sores treponemata were easily demonstrated under dark ground illumination were given an intravenous injection of galyl, and an equal number of similar cases were given

Drug injected		All types of case				Primary syphilis				Early secondary syphilis				Late secondary syphilis			
		Galyl		914		Galyl		914		Galyl		914		Galyl		914	
Total number of cases treated		3[illegible]		150		101		31		251		110		23		9	
No. and percentage of cases		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
[illegible]	No effect	24	31	13	63·0	63	60·6	19	61·3	23	9[illegible]	6[illegible]	5·3	20	87·0	8	5·9
[illegible]	Improvement	171	4[illegible]	61	40·0	[illegible]	33·[illegible]	10	32·3	110	47·[illegible]	5	[illegible]	1[illegible]	7·2	6	66·6
	Improvement [illegible]	[illegible]	2[illegible]·2	22	14	14	13·3	[illegible]	12·9	[illegible]	[illegible]·2	14	12·[illegible]	[illegible]	77·[illegible]	4	[illegible]

[illegible]

neosalvarsan, and the sores were examined for treponemata 6 to 8½ hours after injection Syphilitic spirochætes were present in 8 of the galyl cases as against 5 of the neosalvarsan cases No spirochætes could be found in any of the 24 sores the morning following injection I should like to note here that in two cases treated with an intravenous injection of 1 gm ferrivine, the non arsenical preparation recommended by Mr J E R McDonagh, treponemata pallida were easily demonstrated four days after injection The number of cases is too few to place any reliance on, but they suggest neosalvarsan in the dose used to have a quicker treponemicidal action than galyl

Clinically, in most cases, galyl seems to be almost as valuable as neosalvarsan, ordinary chancres and ulcerative lesions generally clearing up within ten days, but it must be confessed a few cases a month or so after injection still have the remains of a rash and more rarely an unhealed sore, an event which was exceptional in my experience with neosalvarsan Still, it can exhibit the same dramatic cures as the older drug The following case is an instance

A C——, aged 28 Admitted Nov 7th, 1915 Contracted syphilis in May, 1915 He had extensive ulcerations of the tongue and mouth, a rupial rash, some of the lesions 1½ in in diameter, over the whole trunk and limbs, general lymphadenitis, and anal condylomata He was wasted, anæmic, and felt "very ill" After 0 4 gm galyl on Nov 10th the rupial crusts separated in four days, leaving clean granulating surfaces On the 21st he was discharged from hospital with all lesions healed, a gain in weight of 7 lb, and feeling quite well

The above observations point to arsenic as the important element in these drugs The dose 0 4 gm galyl contains just half as much arsenic as 0 9 gm of neosalvarsan, which probably accounts for the slightly less therapeutic effect and lesser toxicity of galyl Perhaps the lesser toxicity has something to do with its having four benzene rings to the molecule, anyhow the following facts are striking Inorganic arsenic, no ring, very toxic, one ringed compounds like atoxyl, less toxic, those with two rings as "606" and "914" still less so, and four-ringed galyl probably the least toxic of the lot

To conclude, it would seem that though excellent results have been obtained with neosalvarsan and mercury with a month's interval between the intravenous injections, this interval is unnecessarily long in the case of galyl As the dose recommended has only half the arsenic content of neosalvarsan the interval could be halved without any more likelihood of the occurrence of cumulative arsenical poisoning (the prevention of which is the object of long intervals) and I am sure if this was done galyl would be as good an agent in the cure of syphilis as neosalvarsan, in fact, the observations of other users of the drug have practically proved it to be so

Since writing the above I read Lieutenant-Colonel L W Harrison and Captain C H Mills's interesting communication on ferrivine [1] Though I only gave two intravenous injections of the drug, before deciding to leave it alone in future the results confirm their observations One gm ferrivine used as supplied without further dilution was given to each of two cases of primary syphilis Immediately following injection both men suffered from acute collapse with a livid, sweating skin, scarcely perceptible pulse and respiratory distress One of the men vomited and had a reactionary temperature of 103° F the same evening There was however, no thrombosis at the site of injection One of these reactions was worse than any immediate result I have seen following over 3000 intravenous injections of neosalvarsan or galyl (Incidentally eight galyl and three neosalvarsan injections given the same morning with the same apparatus were followed by no unpleasant symptoms) Spirochætes were demonstrated in the serum from the sores four days after injection (they were not looked for later than this) Ten days later as no improvement was evident and one of the men had developed a secondary roseola 0 4 gm galyl was given to each case The penile sores then healed in a week

The foregoing article is practically an abstract of a paper to be published in the *Journal of the Royal Naval Medical Service* for July 1916 to which anyone who is interested is referred for further details

[1] THE LANCET June 17th 1916

TWO CASES OF PENETRATING WOUNDS OF THE ABDOMEN INVOLVING THE INFERIOR VENA CAVA

BY D C TAYLOR, F R C S,
TEMPORARY CAPTAIN ROYAL ARMY MEDICAL CORPS

THE two following cases of penetrating wounds of the abdomen, complicated by tearing of the inferior vena cava have recently come under my care

CASE 1 —Private —— aged 20, admitted to clearing station 12 hours after being hit by a piece of high explosive shell Wound of entrance tenth right rib in posterior axillary line, no exit wound The patient was pale and had marked abdominal pain, tenderness, and rigidity No vomiting, pulse 100, respirations 28

Laparotomy was performed Warm ether vapour, axillary saline Incision through right rectus, fair amount of free blood in peritoneum Right lobe of liver penetrated but not bleeding A single tear 2 inches long in the greater curvature of the stomach, extending on to the anterior wall near the pyloric end, was found and sutured The stomach was empty and no contents had been extruded No lesion of bowel was discovered A small retroperitoneal hæmatoma was noticed at, and on the right side of, the base of the mesentery of the small gut A rubber tube was passed to the under surface of the liver and the rest of the incision was closed in layers Pulse at end of operation 120 The pulse began to fail six hours later and the patient became very blanched, he died eight hours after operation

Necropsy —No fresh lesion in gastro-intestinal tract was discovered There was an enormous retroperitoneal hæmatoma on the posterior abdominal wall, but little or no fresh bleeding into the peritoneal cavity An oval hole of about the area of a threepenny piece was found in the anterior wall of the inferior vena cava just below the entry of the right renal vein Careful search failed to find the missile

CASE 2 —Rifleman ——, aged 40 admitted to clearing station three and a half hours after being hit by a fragment from a bomb Entrance wound one inch to right and half an inch above the umbilicus, no exit A small tag of omentum was extruded The patient was pale, pulse 120, abdomen very rigid and tender, had vomited four times

Laparotomy was performed Warm ether, axillary saline four hours after injury, incision through right rectus, exclising track of missile, much free blood in peritoneum Missile had passed through gastro-colic omentum just missing the colon two veins were bleeding, ligated Two large tears in front loop of jejunum were found one at the mesentery border with a small tear of the mesentery, the other at the free border of the bowel immediately opposite Both tears were sutured Much bleeding from the posterior abdominal wall on the right side The intestines were packed back, a hole was found in the posterior peritoneum, just outside the line of the inferior vena cava, and a considerable retro-peritoneal hæmatoma The posterior peritoneum was slit up with scissors, when furious bleeding took place from a hole in the anterior wall of the inferior vena cava at and below the entrance of the right renal vein The tear was longitudinal and three-quarters of an inch long Bleeding was checked by placing the tip of the left forefinger in the hole in the vessel Attempts were made to control the bleeding by compressing the vessel above and below, but failed owing to proximity of the renal vein A pair of artery forceps was placed on the front of the cava just above the wound to produce a pleating effect and then a series of six other artery forceps were applied from above down effectually closing the hole leaving the lumen of the vessel patent but narrowed The missile was not found The omentum was then packed around the bodies of the forceps The abdominal incision was rapidly closed with deep salmon gut sutures taking up all the layers the handles of the artery forceps were left protruding through a gap in the middle of the incision The pulse at the beginning of the operation was 80 and the blood pressure 140, at the end the pulse was 120 and the blood pressure 80 On the first day after the operation the patient was surprisingly fit pulse 112 vomiting at frequent intervals Rectal saline given urine normal On the second day the vomiting stopped The patient was taking fluids well, pulse 80 The bowels acted naturally [illegible] minal distension no discharge from wound urine normal On the fourth day warm chloroform and other mix[illegible] given and the stitches above and below the forceps were removed and the muscles separated [illegible] forceps a good firm track down to the [illegible] forceps were then removed one by one and no bleeding took place until the last pair was removed this bleeding was trivial in amount and easily controlled with a gauze

plug Two days later the gauze plug was removed without any further bleeding The patient did not vomit after the second anæsthetic

The patient was evacuated to the base on the tenth day, and a month after the injury I heard that he was doing well in England

I have heard of other cases of wounds involving the inferior vena cava being brought to clearing stations, but I believe they have all ended fatally The second of my two cases shows that it may be possible to save some of these patients by using forcipressure, or possibly suture in cases where the bleeding can be controlled while the suture is inserted. The reason that these cases do not bleed to death immediately is that the wounds in the posterior peritoneum and the cava are not, or do not remain, directly superimposed

I am much indebted to Lieutenant-Colonel J W Longstaff, R A.M C , for permission to publish these notes, and also to Colonel H M. Rigby, A M S , for his advice in the after treatment of the second case

ON THE USE OF TUBERCULIN IN GENERAL PRACTICE

BY J LINTON BOGLE, M D EDIN ,

LATE TUBERCULOSIS OFFICER UNDER THE COUNTY COUNCIL (PARTS OF LINDSEY) LINCOLNSHIRE.

GRANTED the two postulates (1) that tuberculin is a useful remedy in the treatment of tuberculosis, and (2) that the use of tuberculin should not be the exclusive *role of the* specialist but should belong to the armamentarium of the general practitioner then notes on the main principles of tuberculin administration and hints as to the best practical means of carrying them out should be useful in inducing many medical men in general practice to commence treatment with this valuable remedy in the prevention and cure of the most generally prevalent disease in our country

The best period to commence a course of treatment is in the early stages of the disease at a time when only the family medical attendant is aware of its existence, and when a wise use of the proper remedies means all the difference between a vigorous and useful manhood on the one hand and a wasting and lingering malady on the other, followed too often by an early death My experience as a tuberculosis officer has led me to conclude that amongst medical men generally there is a reluctance to venture on the use of tuberculin based partly on the knowledge that carelessly given, it is a potent cause of evil and partly also on ignorance as to the proper ways and means to begin and to carry out the course of treatment The notes are designedly simple , they are written for the instruction of those who have not hitherto used this method of treatment

General Principles of Tuberculin Administration

Tuberculin if injected into the healthy produces no symptoms whatever but in a tuberculous subject it causes the symptoms of the tuberculin reaction The theoretical explanation of this reaction is that the tuberculous have present in their tissues a specific antibody or lysin, capable of breaking down the tuberculin molecule with the formation of toxins After injection these toxins are carried into the general circulation giving rise to the symptoms of general or focal reaction and are followed by increase in the blood of antituberculous lysin or antibody causing a state of tolerance or increased resistance to the effects of the tuberculous poison

In the administration of tuberculin one of two courses is followed either (1) it is given in small doses repeated at long intervals causing immunization , or (2) in initial small doses advancing rapidly to large and repeated ones producing immunization with tolerance The former is the course taken in glandular tuberculosis in children and local tuberculosis and the latter in autotoxic disease [illegible] Koch first discovered the tubercle bacillus and in relaxed his preparation of Old Tuberculin [illegible] I remember [illegible] the remedy under the advice of a Liverpool consultant The usual role of treatment at that time was large and increasing doses [illegible] As a result the remedy quickly fell into a [illegible] now the aim of the medical man is the avoidance of reactions or their production in a very mild degree, as a valuable guide to further treatment

Varieties of Tuberculin

All preparations of tuberculin, whether derived from the human or the bovine bacillus, have similar curative properties They vary, however, in their strength and character The preparations I have generally used are P T O , or bovine tuberculin , T A.F , or tuberculin albumose free , and T , Koch s Old Tuberculin, belonging to the class of soluble extractives Also B E , bacillus emulsion and P B E , bovine bacillus emulsion, belonging to the class of mixed products—i e , soluble extractions, with the insoluble parts of the tubercle bacillus in addition Their relative strength is approximately as follows, taking T as a standard T = 1, T A.F = 1, B E = ½, P B E = ⅓, P T O = 1/10

Preparation of Dilutions

The Record tuberculin syringe consists of a glass cylinder with a capacity of 1 c c , or 16 9 minims, and is divided into tenths—i e divisions of 0 1 c c The syringe is filled with tuberculin to the first division the remaining nine divisions are filled with diluent consisting of normal saline with 0 25 per cent of carbolic acid This is the first dilution or Dil A, and consists of 0 1 c c of tuberculin in 1 c c of dilution, or 1 in 10 Dil B, or the second dilution consists of one division or 1/10 of Dil A, together with 9/10 of diluent , it has 0·01 c c of tuberculin in 1 c c , or 1 in 100 Dil C in like manner has 0 1 c.c of Dil B to 0 9 c c of diluent, and = 0 001 of tuberculin in 1 c c , or 1 in 1000 Dil D has 0 0001 c c of tuberculin in 1 c c , and Dil E has 0 00001 c.c in 1 c c , being respectively 1 in 10,000 and 1 in 100,000 of tuberculin in 1 c c of dilution It is convenient to make these dilutions in bottles containing 10 c c (Sir A E Wright s vaccine bottles) and these bottles have rubber caps through which the needle can be plunged into the dilution without exposing it to the air

Mode of Administration

The usual method is by subcutaneous injection, although it is also given orally, in which case the dose is usually double that given under the skin , but as there is some doubt whether the gastric juices do not change and weaken the action of the tuberculin, the former method is the one in general use It is to be preferred for its quick action, its accurate dosage, and also for the guidance given by the local reaction In non pulmonary tuberculosis the injection is sometimes made near the site of the diseased gland or joint In oral administration the preparations used are T R or B E , they are given in a wineglassful of cold water an hour before a meal

The Tuberculin Most Suitable for Children

In my experience P B E (the bovine bacillus emulsion) B E , and, on account of its relative mildness, P T O are the most useful preparations They give a slow and mild reaction and it is here that Wright s system of repeated small doses spread over a long period is so valuable In adults where pulmonary disease is the usual type, it is advisable to begin with T A.F or P T O and to follow as a second course, with B E The first few doses are carefully watched but usually afterwards they can be rapidly increased until the optimum dose is reached Some very useful guidance can be obtained by observing carefully the symptoms of the tuberculin reaction. A *local* reaction, shown by a thickening or swelling in the tissues with some tenderness or by redness of the skin is a warning that the dose is being increased quickly enough and may soon produce a general reaction A strong *general* reaction shown by raised temperature sickness shivering headache and malaise and *locally* by signs of crepitation or hæmorrhage in a diseased lung points clearly to the dose being too high and it should be reduced at once

The main guidance in treatment by tuberculin is to be obtained from a regular observance of the temperature (the optonic index being left to experts) It should be taken twice daily at 8 30 A M and 6 P M and recorded upon a chart In all cases of temperature rest is the primary necessity a week in bed is most beneficial especially in the early febrile stages of the disease

Dose

The dose of tuberculin varies according to the type of the disease In local tuberculosis in adults an initial dose of 0·00005 1/20,000 c c of P T O or B E and in children

one of 0 00002, 1/50000 c c , of the same preparations, are fair average commencing doses In pulmonary phthisis a dose of 0 000002 c c to 0·000005 c c of P T O , B E or P B E is sufficient The sequence of doses is more rapid at first than afterwards At first every four days, then weekly After the first few doses the quantity is doubled

The two following sequences, actually carried out in cases of tuberculous disease in children, are instructive

1 Boy, aged 10, whose grandfather and two brothers had died from pulmonary tuberculosis, was found to be suffering from tuberculous disease of the glands and bones, having one sinus in the right popliteal space, two sinuses above the right ankle, four openings in the right groin (two discharging freely), two also in the left groin, glands swollen and suppurating on left side of neck On June 6th, 1914, the initial dose was 0 000001 c c P B E , and in February, 1915, he was receiving Dil D, 0·00001 c c P B E , followed at intervals of two to three weeks by Dil D, 0 2, 0 4, 0 6, Dil C, 0 1, 0 2, 0 3, 0 4, 0 45, 0 5, 0 5, 0 6, 0 6, 0 6, 0 6 His present condition is very satisfactory, all the sinuses are soundly healed, the only remnants of extensive disease from which he suffered being some fibrous scars in the groins and two small fibrous knots on the left and one palpable gland on the right side of the neck His general health is excellent, with an increase in weight from 4 st 1 lb to 5 st 1 lb

2 Girl, aged 12 Commencing pulmonary tuberculosis Had lived in the same house as her uncle, who died of the same disease a few months previously She reacted to the von Pirquet test, and showed signs of commencing disease of the right lung During the first few injections focal reaction occurred, shown by crepitant râles, altered breath sounds, and fever Now she has no signs, having lost her cough and other symptoms, and is also gaining in weight Initial dose, P T O 0·000002, Dil E, 0 2, 0 4, 0 8, D, 0 1, 0 2, 0 3, 0 5 (focal reaction), 0 35, 0 25, 0 35, 0 70, C, 0·1, 0·2, 0 3, 0·4, 0 5, 0 65, 0·75

Final dose —The final dose of 0 1 c c., or the whole c c of Dil A, is generally considered the highest safe dose—i e , 1/10 c c of tuberculin and 9/10 diluent, but many medical men do not advance so far, being content with 0 5 A, or 0 75 A In these higher doses, where the tendency to reaction is more manifest, it is also desirable to lengthen the interval, making it 10 to 14 days in place of a week , and after a few doses either to discontinue treatment for a few months or to inject a dilution of a different preparation of tuberculin of a lower strength The initial dose of this new course may be of a higher strength than that of the first course on account of the state of tolerance established in the patient

Errors to be Avoided

It is necessary to remember that in passing from one dilution to another the strength is 10 times greater Thus a sequence 0 5 D to 0 75 D is an increase of 50 per cent , but from C 0 1 to C 0 2 is 100 per cent increase, so that on changing to a smaller injection of greater strength the increases should be small Again, dilutions newly made are stronger than old dilutions and the extractive toxin tuberculin dilutions are less stable than those made from the ground bacillary bodies such as T R It is desirable to make fresh dilutions every two or three weeks in the former case and every four or six weeks in the latter or they will lose in strength

The duration of the course depends upon the patient and the nature of the disease A nervous patient, tending to high temperatures or hæmorrhage, requires smaller doses, and of a slowly acting preparation, such as B E , and hence the course will be lengthened In children, too with glandular disease and in all cases of bone disease the course will be a long one and much patience is required In pulmonary disease of the ordinary early type the course would last from three to six months with doses at intervals of a week Then after three months' rest a shorter course of three months with another preparation of tuberculin While undergoing this special treatment many patients can and do resume their occupations The two following examples with their sequences of doses are interesting —

(*a*) Young man aged 21 Pulmonary tuberculosis Is now at work in a shed (outside) all day at his trade the local signs having passed away Once during my absence a dose many times stronger was given by inadvertence with a resulting general reaction and a temperature reaching 104 2 F Sequence Dil D P T O 0·5 0·5 C 0·1 0·2, 0·4, 0·55 0 75 B 0 1 0 25 0·5 0 5 0 75 (marked reaction) B 0·1 0·2 0·3 0·4, 0·5, 0·5 0·4 0·5, 0 55 0 75, A 0·1 0·25 0·3 0·4 0·4, 0 5, 0 5, 0·55, 0·6 0 7, 0 75, 0·75, 0·8, reaction to 99 8 F Change to P B E Dil C, 0 1 0·15 0·25, 0 35, 0·5 0·75, B 0·1 0 15, 0 2, 0 3, 0 35, 0 35, P B.E, 0·35 c c (here the error occurred) Dil B, 0 35, 0·5, 0 75 , A, 0 1 0 15, reaction to 99 2° F once This second course is now closed

(*b*) Young man aged 27, shop assistant Cavity in right apex, with consolidation of upper lobe of right lung and hæmoptysis Had been in sanatorium for three months The commencing dose was Dil D, 0·00001 c c of P B E , D, 0 1, 0 2, 0 4 0 7, C, 0 1, 0 2, 0·35, 0 5, 0 75, B 0 1 0·2, 0·3 0 45, 0 7 , A, 0 1, slight hæmoptysis, rest from business for two weeks , one weekly injection omitted then followed by A, 0·15, 0 15, 0 25, 0·2 He is working daily at his business and has had no higher temperature than 98 6° F since the first injection Pulmonary symptoms quiescent and disease gradually drying up

Tests for Tuberculosis

Von Pirquet's test (cutaneous) is the most readily applied the most satisfactory in its results, and the one generally used This test is carried out as follows The points of the scarifier having been sterilised by heating red hot in the flame of the spirit lamp, a few scratches are made, as a control, upon the outer extensor surface of the arm or forearm, which has previously been carefully cleansed and at a spot a few inches above, a drop of T (Old Tuberculin) is, with the syringe, dropped upon the skin The scarifier makes a few cross scratches under the tuberculin until a faint redness is perceptible Tuberculin can be used pure or diluted, the rule being that the lower the strength used, to cause a reaction, the more active the disease In 36 or 48 hours afterwards a note is taken of the temperature and of the condition of the punctured spots If the result be positive the temperature may rise and the tuberculin spot become red and inflamed, with perhaps even a vesicular areola

Contra indications to the Use of Tuberculin

Although experts, with their knowledge and wide experience, may be able to use tuberculin in most cases of tuberculosis with benefit and without injury, there are cases in which the general practitioner would do well to avoid the use of this remedy In mixed infections catarrhal or bronchial or complicated by disease of the heart or kidneys, in rapidly advancing or extensive disease, in cases of high fever and quick pulse, in anæmia associated with little power of resistance, in those in whom there is a strong hæmorrhagic tendency, and in cases of infantile tuberculosis, tuberculin as a rule does no good

Although I have confined my remarks almost exclusively to tuberculin administration in treatment it must never be lost sight of that unless a patient understands the advantage of life in the open air with abundance of light and sunshine rest, healthy surroundings, the avoidance of excitement and the value of good and nourishing food with cod liver oil and other food tonics tuberculin alone can do very little It is only in conjunction with a rational general treatment that the striking results of the special treatment are manifest It is here that residence in a sanatorium does so much it teaches the tuberculous patient how to live

"Festina lente is the golden rule in tuberculin administration, as experiments have shown that even such a minute dose as 1/1 000 000 c c of tuberculin can raise the opsonic index from 0 70 to 1 3 although not the slightest clinical symptoms of change were present

A word, in conclusion as to the cost of the apparatus required A good tuberculin syringe with two steel needles can be obtained for 9*s* 6*d* Tuberculin in its different preparations varies in price from 1*s* to 3*s* a bottle containing 1 c c The scarifier costs only a few shillings and the adjuncts are easily obtained at any chemist s Altogether a very simple outlay

---

Alexandra Rose Day was observed at Portsmouth on June 24th when £925—a record sum—were collected on behalf of the Royal Hospital and the Eye and Ear Hospital

CLERICAL MEDICAL AND GENERAL LIFE ASSURANCE SOCIETY —The war has certainly had no deteriorating effect on the business of this well known society The new ordinary life business for the financial year ended June 30th was £737 472 being an increase of £[illegible] over that of last year with new premiums of £[illegible] showing an increase of £1953 The amount of the claims was £300,341, being a decrease of £[illegible] 710 as compared with the previous year Included in this amount is £[illegible] paid for war claims

Reviews and Notices of Books.

Burdett's Hospitals and Charities, 1916

By Sir HENRY BURDETT, K.C.B., K.C.V.O. London: The Scientific Press, Limited. Price 10*s.* 6*d.* net.

THIS is an authoritative guide to British, American, and Colonial hospitals and asylums, medical schools and colleges, nursing and convalescent institutions, consumption sanatoria, and other institutions of a similar character, giving a review of their position and requirements, management, revenue, and cost of maintenance, and there is no reference book more convenient and useful than "Burdett's Hospitals and Charities." The present edition is on the lines of its predecessors, among the additional matter being a list of London institutions affording facilities for post-graduate work and a list of territorial hospitals. The great hospital funds of London, the institutions for the care of the blind, deaf, and dumb, orphanages, missions, nursing and convalescent institutions are all described, while there are chapters on hospital finance and hospital charity generally. The magnitude of the interests touched upon can be realised by the statement that in the year 1914 the 1978 charities of which particulars are forthcoming had an income from all sources of £12,907,000, or a decrease of £651,000 from the income for 1913. The expenditure in 1914 was £12,144,000 as compared with £12,280,753 in 1913. The expenditure on the management of hospitals will, of course, be enormously increased as a consequence of the war, while accommodation for the wounded has multiplied throughout the country, representing 100,000 additional beds. Sir Henry Burdett pays a well-deserved tribute to the way in which the voluntary hospitals have responded to the demands made upon them in spite of the heavy financial drain on institutional resources. It is interesting to note that the Norfolk and Norwich Hospital has obtained a new source of revenue by an appeal in the form of 200 written letters, costing one sovereign, for contributions of £5 per month for each of the soldiers' beds. The response produced £5721. The beds are maintained by individuals and groups of persons of all classes, domestic servants contributing no less than £152. It is hoped that this system will produce a steady revenue after the war.

In his preface Sir Henry Burdett refers to the fact that 50 years of continuous work for the voluntary hospitals of this country will be completed should he live until August, 1918, by which time he will have passed the allotted span of threescore years and ten. For several years in succession he has appealed for someone to take up and continue his task as editor, and it is to be regretted that there has been no response to the appeal. We hope that Sir Henry Burdett will be spared to edit for a long time yet a book of the utmost value to everyone interested in hospital charities, but it would be a great loss to the hospital world if from any cause the book which has been regularly issued for 27 years should fail to make its appearance.

Nouveau Traité de Chirurgie.

Publié sous la direction de A. LE DENTU et PIERRE DELBET. *Fractures.* Vol. I. *Fractures en Général. Fractures du Membre supérieur.* Par JEAN TANTON, Médecin major de l'Armée, Professeur agrégé du Val de Grâce. Avec 470 figures dans le texte. Paris: J. B. Baillière et Fils. 1915. Pp. 860. Price 20 francs.

THIS fasciculus of an important treatise on surgery has appeared in spite of the war, and it is of special value when innumerable fractures present themselves to all those surgeons who are concerned with the treatment of the wounded. A glance at the volume is sufficient to show the thorough way in which the subject of fractures has been treated. Fractures of the skull, of the vertebral column, and of the thorax have been excluded, as they have been treated in other fasciculi of this system of surgery, while the author has been unable to include in this volume more than the general subject of fracture and the fractures of the upper limb. The fractures of the lower limb and of the pelvis will form the subject of another volume. These great increases in our knowledge of fractures have been undoubtedly due to the introduction of the X rays, for thus we have been enabled to gain exact knowledge of the pathology of the living, and the author has appreciated to the full the value of skiagrams, for he has included in his work a large number. He is, however, fully alive to the erroneous deductions which the untrained may draw from X ray photographs, and he shows us illustrations exemplifying this fact.

It is needless to criticise in detail such a work as this when we are able to draw attention to the completeness and exactitude with which the author has dealt with the whole subject. We cannot give a better example of his thoroughness than his treatment of fracture of the base of the first metacarpal bone, for he recognises three, or rather four forms of this fracture, and each of these varieties is illustrated with photographs. The sections dealing with the treatment of the various fractures are good, the illustrations are abundant and apposite.

We have not met a more scholarly treatise on fractures, and we look forward with interest to the appearance of the next volume.

The Origin and Nature of the Emotions. Miscellaneous Papers.

By GEORGE W. CRILE, M.D., Professor of Surgery, School of Medicine, Western Reserve University, Cleveland. Edited by AMY F. ROWLAND, B.S. London and Philadelphia: W. B. Saunders Company. 1915. Pp. 240. Price 13*s.* net.

Dr. Crile's work on shock, anoci-association, and kindred topics is already well known in this country. The present volume contains various papers that bear more or less on his previous contributions; they serve also as a preface to certain monographs which we are told are in preparation. It is not practicable to give an analysis of all the eight essays comprising this volume; they deal with such diverse subjects as the relation between the physical state of the brain cells and brain functions, alkalescence, acidity and anæsthesia, pain, laughter and crying, a mechanistic view of psychology, a mechanistic theory of disease—to name but some of them. We may refer more particularly to those which have a bearing on the title of the book.

Briefly, it may be stated that the author has determined by laboratory researches that such emotions as fear and anger produce the same histological changes in the brain as physical trauma. Inasmuch as the phylogenetic origin of fear is injury, it follows that injury and fear cause the same phenomena. In their quality and in their expression psychic shock and physical shock are the same. Dr. Crile has made a patient investigation of the cells of the cortex in human cases of exhausting diseases in various animals completely exhausted by running and fighting, by rage and fear, by physical injury, and by the injection of strychnine, and in every instance he has been able to demonstrate that the loss of vitality—in other words the loss of the normal power to convert potential into kinetic energy—is accompanied by physical changes in the brain cells. He concludes that these changes are "work" changes. But further changes were also found in the adrenals and in the liver again in every instance. Dr. Crile regards these three organs as constituting what he calls the "kinetic system." Linked to it is the thyroid gland. "When the kinetic system is driven at an overwhelming rate of speed, as by severe physical injury, by intense emotional excitation, by perforation of the intestines, by the sudden onset of an infectious disease, by an overdose of strychnine, by a Marathon race, by a grilling fight, by anaphylaxis, the result of these acute overwhelming activations of the kinetic system is clinically designated shock, and according to the cause is called traumatic shock, toxic shock, anaphylactic shock, drug shock, &c." In this way the author endeavours to harmonise the pathological changes in these organs in disease with the occurrence of the same changes as the result of emotional strain. Conversely, any agency that can sufficiently inspire faith or dispel worry will inhibit the action of emotion on these organs. They can be, and are, physically damaged by fear—they can be protected and strengthened in their function by suitable psychical stimuli.

We commend to the thoughtful reader these essays on the fascinating subject of psychical and physical interaction.

one of 0 00002, 1/50000 c c , of the same preparations, are fair average commencing doses In pulmonary phthisis a dose of 0 000002 c c to 0·000005 c.c of P T O , B E , or P B E is sufficient The sequence of doses is more rapid at first than afterwards At first every four days, then weekly After the first few doses the quantity is doubled

The two following sequences, actually carried out in cases of tuberculous disease in children, are instructive

1 Boy, aged 10, whose grandfather and two brothers had died from pulmonary tuberculosis, was found to be suffering from tuberculous disease of the glands and bones, having one sinus in the right popliteal space, two sinuses above the right ankle, four openings in the right groin (two discharging freely), two also in the left groin glands swollen and suppurating on left side of neck On June 6th, 1914, the initial dose was 0·000001 c c P B E , and in February, 1915, he was receiving Dil D, 0 00001 c c P B E , followed at intervals of two to three weeks by Dil D, 0 2, 0 4, 0 6, Dil C, 0 1, 0 2, 0 3, 0 4 0 45, 0 5 0 5, 0 6, 0 6, 0 6, 0 6 His present condition is very satisfactory, all the sinuses are soundly healed, the only remnants of extensive disease from which he suffered being some fibrous scars in the groins and two small fibrous knots on the left and one palpable gland on the right side of the neck His general health is excellent, with an increase in weight from 4 st 1 lb to 5 st 1 lb

2 Girl, aged 12 Commencing pulmonary tuberculosis Had lived in the same house as her uncle, who died of the same disease a few months previously She reacted to the von Pirquet test, and showed signs of commencing disease of the right lung During the first few injections focal reaction occurred, shown by crepitant râles, altered breath sounds, and fever Now she has no signs, having lost her cough and other symptoms, and is also gaining in weight Initial dose, P T O 0 000002 Dil E, 0·2, 0 4, 0 8, D, 0 1, 0 2, 0 3, 0 5 (focal reaction), 0 35, 0·25, 0·35, 0 70, C, 0 1, 0 2, 0 3, 0 4, 0 5, 0 65, 0·75

Final dose —The final dose of 0 1 c c , or the whole c c of Dil. A, is generally considered the highest safe dose—i e , 1/10 c c of tuberculin and 9/10 diluent, but many medical men do not advance so far, being content with 0 5 A, or 0 75 A. In these higher doses, where the tendency to reaction is more manifest, it is also desirable to lengthen the interval, making it 10 to 14 days in place of a week, and after a few doses either to discontinue treatment for a few months or to inject a dilution of a different preparation of tuberculin of a lower strength The initial dose of this new course may be of a higher strength than that of the first course on account of the state of tolerance established in the patient

Errors to be Avoided

It is necessary to remember that in passing from one dilution to another the strength is 10 times greater Thus a sequence 0 5 D to 0 75 D is an increase of 50 per cent but from C 0 1 to C 0 2 is 100 per cent increase, so that on changing to a smaller injection of greater strength the increases should be small Again, dilutions newly made are stronger than old dilutions, and the extractive toxin tuberculin dilutions are less stable than those made from the ground bacillary bodies such as T R It is desirable to make fresh dilutions every two or three weeks in the former case, and every four or six weeks in the latter or they will lose in strength

The duration of the course depends upon the patient and the nature of the disease A nervous patient, tending to high temperatures or hemorrhage, requires smaller doses, and of a slowly acting preparation, such as B E , and hence the course will be lengthened In children, too with glandular disease and in all cases of bone disease the course will be a long one and much patience is required In pulmonary disease of the ordinary early type the course would last from three to six months with doses at intervals of a week Then, after three months' rest a shorter course of three months with another preparation of tuberculin. While undergoing this special treatment many patients can and do resume their occupations The two following examples with their sequences of doses are interesting —

(*a*) Young man aged 21 Pulmonary tuberculosis Is now at work in a shed (outside) all day at his trade, the local signs having passed away Once during my absence a dose many times stronger was given by inadvertence with a resulting general reaction and a temperature reaching 101 2 F Sequence Dil D P T O 0·5 0·5 C 0·1 0·2 0 4 0·4, 0 5, 0 5 0 55, 0 6 0 7, 0 75, 0·75, 0 8, reaction to 99 8 F Change to P B E Dil C, 0 1 0·15, 0·25, 0 35, 0·5, 0·75 B, 0·1 0 15, 0 2, 0 3, 0 35, 0 35, P B.E , 0·35 c c (here the error occurred) Dil B, 0 35, 0·5, 0·75 , A, 0 1 0·15, reaction to 99 2° F once This second course is now closed

(*b*) Young man aged 27, shop assistant Cavity in right apex, with consolidation of upper lobe of right lung and hæmoptysis Had been in sanatorium for three months The commencing dose was Dil D, 0·00001 c c of P B E , D, 0 1, 0·2, 0 4 0 7, C, 0 1, 0 2, 0·35, 0·5, 0 75, B, 0 1, 0·2, 0·3 0 45, 0 7, A, 0 1, slight hæmoptysis, rest from business for two weeks, one weekly injection omitted then followed by A 0 15, 0 15, 0 25, 0·2 He is working daily at his business and has had no higher temperature than 98 6° F since the first injection Pulmonary symptoms quiescent and disease gradually drying up

Tests for Tuberculosis

Von Pirquet's test (cutaneous) is the most readily applied, the most satisfactory in its results, and the one generally used This test is carried out as follows The points of the scarifier having been sterilised by heating red hot in the flame of the spirit lamp, a few scratches are made, as a control, upon the outer extensor surface of the arm or forearm, which has previously been carefully cleansed and at a spot a few inches above, a drop of T (Old Tuberculin) is, with the syringe, dropped upon the skin The scarifier makes a few cross scratches under the tuberculin until a faint redness is perceptible Tuberculin can be used pure or diluted, the rule being that the lower the strength used to cause a reaction, the more active the disease In 36 or 48 hours afterwards a note is taken of the temperature and of the condition of the punctured spots If the result be positive the temperature may rise and the tuberculin spot become red and inflamed, with perhaps even a vesicular areola

Contra indications to the Use of Tuberculin

Although experts, with their knowledge and wide experience may be able to use tuberculin in most cases of tuberculosis with benefit and without injury, there are cases in which the general practitioner would do well to avoid the use of this remedy In mixed infections, catarrhal or bronchial or complicated by disease of the heart or kidneys, in rapidly advancing or extensive disease, in cases of high fever and quick pulse, in anæmia associated with little power of resistance, in those in whom there is a strong hæmorrhagic tendency, and in cases of infantile tuberculosis tuberculin as a rule does no good

Although I have confined my remarks almost exclusively to tuberculin administration in treatment, it must never be lost sight of that unless a patient understands the advantage of life in the open air with abundance of light and sunshine rest healthy surroundings, the avoidance of excitement and the value of good and nourishing food, with cod liver oil and other food tonics tuberculin alone can do very little It is only in conjunction with a rational general treatment that the striking results of the special treatment are manifest It is here that residence in a sanatorium does so much it teaches the tuberculous patient how to live

'Festina lente' is the golden rule in tuberculin administration as experiments have shown that even such a minute dose as 1/1 000 000 c c of tuberculin can raise the opsonic index from 0 70 to 1 3 although not the slightest clinical symptoms of change were present

A word, in conclusion as to the cost of the apparatus required A good tuberculin syringe with two steel needles can be obtained for 9*s* 6*d* Tuberculin in its different preparations varies in price from 1*s* to 3*s* a bottle containing 1 c c The scarifier costs only a few shillings and the adjuncts are easily obtained at any chemist s Altogether a very simple outlay

---

Alexandra Rose Day was observed at Portsmouth on June 24th, when £925—a record sum—were collected on behalf of the Royal Hospital and the Eye and Ear Hospital

CLERICAL, MEDICAL, AND GENERAL LIFE ASSURANCE SOCIETY —The war has certainly had no deteriorating effect on the business of this well known society The new net life business for the financial year ended June 30th was £737 472 being an increase of £[illegible] over that of last year with new premiums of £25 792 [illegible] ing an increase of £1953 The amount of the claims was £300,3[illegible] being a decrease of £43 710 as compared with the previous year Included in this amount is £[illegible] paid for war claims

Reviews and Notices of Books.

Burdett's Hospitals and Charities, 1916

By SIR HENRY BURDETT, K.C.B., K.C.V.O. London: The Scientific Press, Limited. Price 10*s.* 6*d.* net.

THIS is an authoritative guide to British, American, and Colonial hospitals and asylums, medical schools and colleges, nursing and convalescent institutions, consumption sanatoria, and other institutions of a similar character, giving a review of their position and requirements, management, revenue, and cost of maintenance, and there is no reference book more convenient and useful than "Burdett's Hospitals and Charities." The present edition is on the lines of its predecessors, among the additional matter being a list of London institutions affording facilities for post-graduate work and a list of territorial hospitals. The great hospital funds of London, the institutions for the care of the blind, deaf, and dumb, orphanages, missions, nursing and convalescent institutions are all described, while there are chapters on hospital finance and hospital charity generally. The magnitude of the interests touched upon can be realised by the statement that in the year 1914 the 1978 charities of which particulars are forthcoming had an income from all sources of £12,907,000, or a decrease of £651,000 from the income for 1913. The expenditure in 1914 was £12,144,000 as compared with £12,280,753 in 1913. The expenditure on the management of hospitals will, of course, be enormously increased as a consequence of the war, while accommodation for the wounded has multiplied throughout the country, representing 100,000 additional beds. Sir Henry Burdett pays a well-deserved tribute to the way in which the voluntary hospitals have responded to the demands made upon them in spite of the heavy financial drain on institutional resources. It is interesting to note that the Norfolk and Norwich Hospital has obtained a new source of revenue by an appeal in the form of 200 written letters, costing one sovereign, for contributions of £5 per month for each of the soldiers' beds. The response produced £5721. The beds are maintained by individuals and groups of persons of all classes, domestic servants contributing no less than £152. It is hoped that this system will produce a steady revenue after the war.

In his preface Sir Henry Burdett refers to the fact that 50 years of continuous work for the voluntary hospitals of this country will be completed should he live until August, 1918, by which time he will have passed the allotted span of threescore years and ten. For several years in succession he has appealed for someone to take up and continue his task as editor, and it is to be regretted that there has been no response to the appeal. We hope that Sir Henry Burdett will be spared to edit for a long time yet a book of the utmost value to everyone interested in hospital charities, but it would be a great loss to the hospital world if from any cause the book which has been regularly issued for 27 years should fail to make its appearance.

Nouveau Traité de Chirurgie.

Publié sous la direction de A. LE DENTU et PIERRE DELBET. *Fractures. Tome I. Fractures en Général. Fractures du Membre supérieur.* Par JEAN TANTON, Médecin major de l'Armée, Professeur agrégé du Val de Grâce. Avec 470 figures dans le texte. Paris: J. B. Baillière et Fils. 1915. Pp. 860. Price 20 francs.

THIS fasciculus of an important treatise on surgery has appeared in spite of the war, and it is of special value when innumerable fractures present themselves to all those surgeons who are concerned with the treatment of the wounded. A glance at the volume is sufficient to show the thorough way in which the subject of fractures has been treated. Fractures of the skull, of the vertebral column, and of the thorax have been excluded, as they have been treated in other fasciculi of this systematic surgery, while the author has been unable to include in this volume more than the general subject of fractures and the fractures of the upper limb. The fractures of the lower limbs and of the pelvis will form the subject of another volume. The great increase in our knowledge of fractures has been undoubtedly due to the introduction of the X rays, for thus we have been enabled to gain exact knowledge of the pathology of the living, and the author has appreciated to the full the value of skiagrams, for he has included in his work a large number. He is, however, fully alive to the erroneous deductions which the untrained may draw from X ray photographs, and he shows us illustrations exemplifying this fact.

It is needless to criticise in detail such a work as this when we are able to draw attention to the completeness and exactitude with which the author has dealt with the whole subject. We cannot give a better example of his thoroughness than his treatment of fracture of the base of the first metacarpal bone, for he recognises three, or rather four forms of this fracture, and each of these varieties is illustrated with photographs. The sections dealing with the treatment of the various fractures are good, the illustrations are abundant and apposite.

We have not met a more scholarly treatise on fractures, and we look forward with interest to the appearance of the next volume.

The Origin and Nature of the Emotions. Miscellaneous Papers.

By GEORGE W. CRILE, M.D., Professor of Surgery, School of Medicine, Western Reserve University, Cleveland. Edited by AMY F. ROWLAND, B.S. London and Philadelphia: W. B. Saunders Company. 1915. Pp. 240. Price 13*s.* net.

Dr. Crile's work on shock, anoci-association, and kindred topics is already well known in this country. The present volume contains various papers that bear more or less on his previous contributions; they serve also as a preface to certain monographs which we are told are in preparation. It is not practicable to give an analysis of all the eight essays comprising this volume; they deal with such diverse subjects as the relation between the physical state of the brain-cells and brain functions, alkalescence, acidity and anæsthesia, pain, laughter and crying, a mechanistic view of psychology, a mechanistic theory of disease—to name but some of them. We may refer more particularly to those which have a bearing on the title of the book.

Briefly, it may be stated that the author has determined by laboratory researches that such emotions as fear and anger produce the same histological changes in the brain as physical trauma. Inasmuch as the phylogenetic origin of fear is injury, it follows that injury and fear cause the same phenomena. In their quality and in their expression, psychic shock and physical shock are the same. Dr. Crile has made a patient investigation of the cells of the cortex in human cases of exhausting diseases, in various animals completely exhausted by running and fighting, by rage and fear, by physical injury, and by the injection of strychnine, and in every instance he has been able to demonstrate that the loss of vitality—in other words, the loss of the normal power to convert potential into kinetic energy—is accompanied by physical changes in the brain cells. He concludes that these changes are "work" changes. But further, changes were also found in the adrenals and in the liver again in every instance. Dr. Crile regards these three organs as constituting what he calls the "kinetic system." Linked to it is the thyroid gland. "When the kinetic system is driven at an overwhelming rate of speed, as by severe physical injury, by intense emotional excitation, by perforation of the intestines, by the sudden onset of an infectious disease, by an overdose of strychnine, by a Marathon race, by a grilling fight, by anaphylaxis, the result of these acute overwhelming activations of the kinetic system is clinically designated shock, and according to the cause is called traumatic shock, toxic shock, anaphylactic shock, drug shock, &c." In this way the author endeavours to harmonise the pathological changes in these organs in disease with the occurrence of the same changes as the result of emotional strain. Conversely, any agency that can sufficiently inspire faith or dispel worry will inhibit the action of emotion on these organs. They can be, and are, physically damaged by fear—they can be protected and strengthened in their function by suitable psychical stimuli.

We commend to the thoughtful reader these essays on the fascinating subject of psychical and physical interaction.

JOURNALS

Quarterly Journal of Experimental Physiology Editors E A SCHÄFER, W D HALLIBURTON, C S SHERRINGTON, E H STARLING, and A D WALLER Vol IX, No 4 London Charles Griffin and Co, Limited 1916 Pp 281–401 Price 7s 6d —On the Regeneration of the Cervical Sympathetic After Section, by R Tsukaguchi The experiments were made on two dogs and a number of adult cats In the dogs, about six months after cutting out a portion of the vagus and sympathetic trunks the paralytic symptoms affecting the eye and other parts are not entirely recovered from There is no restoration of the inhibitory action of the vagus on the heart nor of its motor effects upon the œsophagus and stomach The histological observations indicate that the regeneration of the sympathetic has been accomplished not by its own fibres alone, but to a large extent by others of vagus origin In cats, the regenerating fibres of the cut sympathetic first reach the superior cervical ganglion between three and four weeks after section and begin to function about six weeks after section —Notes on the Functional Regeneration of the Cut Cervical Sympathetic and Vagus By E A Schäfer and H O Feiss —Even 10 to 12 months after excision of a portion of the cervical vagus and sympathetic, there are still differences observable in the physiological conditions of the parts supplied by the sympathetic as compared with the normal side Stimulation of the peripheral (upper) end of the cut and regenerated sympathetic evokes the usual effects after such periods, but a stronger stimulus is required than the normal side A decidedly stronger stimulation of the lower stump is required to elicit the effects of sympathetic excitation in the eye, results which are easily elicited by stimulation of the upper stump This appears to indicate that vagal fibres have been largely instrumental in effecting the regeneration of the peripheral sympathetic No sign of physiological recovery of the peripheral cut vagus, one dog, five cats could be obtained after intervals of from 10 to 13 months —The Influence of Muscle Extract on Muscle Contraction, by S Takayasu Saline extract of muscle affects the contraction of the frog sartorius in much the same way as a saline extract which contains excess of potassium The deleterious effects produced by muscle extract in the contraction are due to potassium These effects can be antagonised by a small addition of calcium chloride to the extract —The Influence of Adrenalin on the Contraction of Skeletal Muscle, by S Takayasu Solutions of adrenalin 1 in 1 000 000 show no distinct effect on the frog sartorius Immersion in solutions 1 in 500,000 or 1 in 5000 diminishes the contractile power, the effect being most marked on the height and duration of the curve, while the latency is little affected Muscle poisoned by immersion in solutions of adrenalin rapidly recovers on being transferred to normal Ringer Adrenalin muscular contractions are not fatigue contractions, and are unlike those produced under the influence of veratrine, although they resemble to some extent those obtained under the influence of excess of potassium salts —Experimental Researches on Sensory Localisations in the Cerebral Cortex by J G Dusser de Barenne Extirpation and not electrical stimulation methods have been the more prolific in advancing our knowledge of sensory cortical localisation The author claims that his method of the local application of strychnine to the exposed uninjured cortex is a great advance on the extirpation method Strychnine produces symptoms of excitation in the sensory sphere Some of the author's results in his experiments on cats are as follows Application of strychnine to a local "active zone" of the cortex causes constant and typical symptoms of excitation but if applied outside this zone there is no like disturbance The sensory disturbance produced affects both cutaneous and deep sensibility the disturbances in the latter manifesting themselves in an abnormal hyperæsthesia to pinching and pressure of the bones tendons and muscles As to the sensory functions of the skin both sides of the body are represented in the cortex of one hemisphere but on the opposite side most The author gives a minute analysis of the localisation of the sensory areas for head and limbs The lobus frontalis has no sensory functions in the cat The paper is illustrated by a large number of figures of the brain and one plate —The Effects of Thyroidectomy and Thyroid Feeding upon the Adrenalin Content of the Suprarenals by P T Herring Complete thyroidectomy has little, if any permanent effect upon the adrenalin content of the suprarenals of the rabbit—an animal in which no characteristic symptoms follow removal of the thyroid In cats the adrenalin content of the suprarenals is diminished in direct proportion to the severity of the symptoms induced by removal of the thyroids

The Military Surgeon —The last issue has a special value just now, for the reports from the various Red Cross parties sent out by the unstinted generosity of the United States give comparable information about the medical and surgical work being done by each of the belligerents In the June number Major H H Suirely tells of the work done by the unit at Kieff, behind the Galician lines from December 1914, to September, 1915 The Russian Army Medical Corps he says, takes complete charge of the wounded as far as the railhead, the Red Cross is then allowed to share in providing hospital trains in supplying nurses for war hospitals, and is indeed allowed to equip and staff base hospitals, but under military supervision, which never loses sight of any wounded man even if he be convalescing in his distant village Kieff had some 30 000 beds for wounded soldiers, but it received daily from 2000 to 12 000 cases, so all patients fit to travel were sent daily further on into Russia, by order, and at any rate 8 per cent of total cases The hospital was located in a polytechnic school and could take 750 cases in canvas cots at first, but later iron bedsteads were supplied The experiences of the hospital as regards infected wounds, lice and so on, were similar to those reported from elsewhere Cases of Asiatic cholera and typhoid fever were seen in the great military hospitals, but the civil population was unusually free from epidemics in the summer of 1915 the peasants ignorantly and ungratefully ascribing this to the absence of the doctors now away with the troops There was no vodka, of course a drunken man was an unusual event To the interdiction of vodka is ascribed the lower frequency of insanity in this than in the Russo-Japanese War Also, there was practically no venereal disease among the Russian soldiers

The Journal of Bacteriology Being the Official Organ of the Society of American Bacteriologists Bi monthly Baltimore The Williams and Wilkins Company, London The Cambridge University Press Subscription 23s per annum —It is somewhat remarkable that there is, as the publishers' announcement points out, no journal in the English language which deals with bacteriological science as a whole This gap it is the aim of this new addition to our lists of scientific publications to fill It is to be the official organ of the Society of American Bacteriologists, and is to serve also as a medium for the discussion of such general questions—of interest to all bacteriologists whether engaged in medical technical, agricultural, or purely scientific research—as the structure and physiology of the microbes the inter relationships of microbic types the effects of physical and chemical agents on microbic life the mutual interactions of microbes growing together in various media the nutritional needs and products of metabolic activity of various microbes new advances in technique, and so on There is no doubt that such a journal is sorely needed Bacteriologists dealing with any particular section are only too apt to regard that as the only important branch of the science and it might often be greatly to their advantage to know what was going on in other fields of work As Dr W T Sedgwick says in his foreword "Bacteriology must henceforward be recognised as a broad and fundamental branch of science coördinate with rather than subservient to the other grand divisions of biology, such as medicine agriculture zoology and botany" The first number gives excellent promise The contents include a paper by Messrs Reiger Berman and Sturgess on the utilisation of proteid and non proteid nitrogen which goes to show that bacteria are unable to attack and bring about the destruction of proteins without the aid of enzymes or other proteolytic agents and this appears to be true in the case of albumoses and peptones as well as for more complex proteins like egg albumen James Sherman commences an elaborate study of the proteins in the milk and their relation to the bacterial flora a question of great importance in agriculture C G A Rose gives a complex [illegible] agar which will keep the medium [illegible] for many days and even as long as [illegible] weeks [illegible] temperature M M Obst finds that lactose bouillon is a much more suitable culture medium for B coli than lactose-peptone-ox bile permitting the development of twice as many colonies from water Simmons [illegible] conclude the first number of a useful and promising journal

A UNIQUE "EVERY CONTINGENCY" INSURANCE

The ideal insurance for professional men is one which covers (1) sickness of all kinds, (2) accidents of all kinds, (3) death, or survival to age 65 The Combined Policy of the Medical, Sickness and Accident Society has been specially drawn up to provide for all of these contingencies —the rate charged is the lowest obtainable, the Society deals *only* with medical and dental practitioners, is mutual, and was established in 1884

EXAMPLE.

At age 30 an annual premium of £13 8s 6d will insure the following benefits—During incapacity from illness or accident, £3 3s per week for first 26 weeks and £1 11s 6d. per week during remainder of illness to age 65
At age 65 or previous death £300

Sickness and accident claims are paid every week by cheque and death claims on production of satisfactory evidence Survival claims are paid on the 65th birthday

Practitioners should write the Secretary for full prospectus

MEDICAL SICKNESS & ACCIDENT SOCY.,
300, High Holborn, W C

GALE'S
COMPOUND SYRUP OF THE GLYCEROPHOSPHATES
with
PURIFIED EXTRACT OF OX-BONE MARROW

PALATABLE, STABLE, EFFICACIOUS

An elegant combination manufactured from specially selected and purified materials only It has been found a most useful preparation for fortifying the constitution against infection, and has given gratifying results in the various forms of Anæmia, Debility, &c

DOSE One teaspoonful.

ELIXIR ZYMETOS CO.
GALE'S.

A very palatable combination of enzymes extremely useful in assisting the digestion of weakened constitutions and aiding the nutrition of patients convalescent from long and severe illnesses

DOSE [illegible]

Price List and Pill Catalogue on application.

GALE & COMPY., LTD.,
WHOLESALE CHEMISTS AND DRUGGISTS
[illegible]
15 BOUVERIE ST FLEET ST LONDON E C
[illegible]

THE
INFANT WELFARE CAMPAIGN.

Mr B S Straus, J P, in presiding at the annual meeting of Virol, Limited, stated that it was a striking tribute not only to the power of the British Navy, but also in an especial degree to the efficiency and courage of the Mercantile Marine, that in the peculiar circumstances of the times the business of the country, with all its vast requirements, had been carried on and so large an export trade maintained

The improvement shown by their own accounts had extended to all branches of their business, including Hospitals and Sanatoria Public Health Authorities in connection with the Infant Welfare Movement, and the development of their home and export trade More than 1500 Hospitals, Consumption Sanatoria, and Clinics were large and regular purchasers of Virol

He was especially pleased to state that although manufacturing and distributing costs had risen substantially, they had as a result of a record increase in their sales, been able to show improved results without having advanced their prices to the public

With regard to the use of their preparation by the Public Health Authorities in connection with the Infant Mortality crusade, there could be no question of the important part that proper feeding must play in the reduction of the Infant Death Rate The universally acknowledged value of Virol, whether given to the child direct or through the agency of the mother, who herself fed her child, confirmed the belief that in this connection Virol stood in a unique position as a National Asset.

He desired also to call the attention of the Governing Authorities of our great Fever Hospitals to the consideration of the fact that the period of convalescence might be considerably shortened by more generally Virolising the diet of their patients He felt sure that by this means very large economies could be effected in the administrative expenses of these invaluable institutions through whose wards such enormous numbers of children passed year by year

The Report and Accounts were unanimously adopted

a Guarantee!

Cadbury's Cocoa

is absolutely pure and prepared only from the finest selected cocoa

(Cadbury Brothers)

JOURNALS

Quarterly Journal of Experimental Physiology Editors E A SCHÄFER W D HALLIBURTON, C S SHERRINGTON, E H STARLING, and A D WALLER Vol IX, No 4 London Charles Griffin and Co, Limited 1916 Pp 281–401 Price 7s 6d —On the Regeneration of the Cervical Sympathetic After Section, by R Tsukaguchi The experiments were made on two dogs and a number of adult cats In the dogs, about six months after cutting out a portion of the vagus and sympathetic trunks the paralytic symptoms affecting the eye and other parts are not entirely recovered from There is no restoration of the inhibitory action of the vagus on the heart nor of its motor effects upon the œsophagus and stomach The histological observations indicate that the regeneration of the sympathetic has been accomplished not by its own fibres alone, but to a large extent by others of vagus origin In cats, the regenerating fibres of the cut sympathetic first reach the superior cervical ganglion between three and four weeks after section and begin to function about six weeks after section —Notes on the Functional Regeneration of the Cut Cervical Sympathetic and Vagus By E A Schäfer and H O Feiss —Even 10 to 12 months after excision of a portion of the cervical vagus and sympathetic, there are still differences observable in the physiological conditions of the parts supplied by the sympathetic as compared with the normal side Stimulation of the peripheral (upper) end of the cut and regenerated sympathetic evokes the usual effects after such periods, but a stronger stimulus is required than the normal side A decidedly stronger stimulation of the lower stump is required to elicit the effects of sympathetic excitation in the eye, results which are easily elicited by stimulation of the upper stump This appears to indicate that vagal fibres have been largely instrumental in effecting the regeneration of the peripheral sympathetic No sign of physiological recovery of the peripheral cut vagus, one dog, five cats, could be obtained after intervals of from 10 to 13 months —The Influence of Muscle Extract on Muscle Contraction, by S Takayasu Saline extract of muscle affects the contraction of the frog sartorius in much the same way as a saline extract which contains excess of potassium The deleterious effects produced by muscle extract in the contraction are due to potassium These effects can be antagonised by a small addition of calcium chloride to the extract —The Influence of Adrenalin on the Contraction of Skeletal Muscle, by S Takayasu Solutions of adrenalin 1 in 1 000 000 show no distinct effect on the frog sartorius Immersion in solutions 1 in 500,000 or 1 in 5000 diminishes the contractile power, the effect being most marked on the height and duration of the curve, while the latency is little affected Muscle poisoned by immersion in solutions of adrenalin rapidly recovers on being transferred to normal Ringer Adrenalin muscular contractions are not fatigue contractions, and are unlike those produced under the influence of veratrine, although they resemble to some extent those obtained under the influence of excess of potassium salts —Experimental Researches on Sensory Localisations in the Cerebral Cortex by J G Dusser de Barenne Extirpation and not electrical stimulation methods have been the more prolific in advancing our knowledge of sensory cortical localisation The author claims that his method of the local application of strychnine to the exposed uninjured cortex is a great advance on the extirpation method Strychnine produces symptoms of excitation in the sensory sphere Some of the author's results in his experiments on cats are as follows Application of strychnine to a local "active zone" of the cortex causes constant and typical symptoms of excitation, but if applied outside this zone there is no like disturbance The sensory disturbance produced affects both cutaneous and deep sensibility the disturbances in the latter manifesting themselves in an abnormal hyperæsthesia to pinching and pressure of the bones tendons and muscles As to the sensory functions of the skin both sides of the body are represented in the cortex of one hemisphere but on the opposite side most. The author gives a minute analysis of the localisation of the sensory areas for head and limbs The lobus frontalis has no sensory functions in the cat The paper is illustrated by a large number of figures of the brain and one plate —The Effects of Thyroidectomy and Thyroid Feeding upon the Adrenalin Content of the Suprarenals by P T Herring Complete thyroidectomy has little, if any, permanent effect upon the adrenalin content of the suprarenals of the rabbit—an animal in which no characteristic symptoms follow removal of the thyroid In cats the adrenalin content of the suprarenals is diminished in direct proportion to the severity of the symptoms induced by removal of the thyroids

The Military Surgeon —The last issue has a special value just now, for the reports from the various Red Cross parties sent out by the unstinted generosity of the United States give comparable information about the medical and surgical work being done by each of the belligerents In the June number Major H H Snively tells of the work done by the unit at Kieff, behind the Galician lines from December 1914, to September, 1915 The Russian Army Medical Corps he says, takes complete charge of the wounded as far as the railhead the Red Cross is then allowed to share in providing hospital trains in supplying nurses for war hospitals, and is indeed allowed to equip and staff base hospitals, but under military supervision, which never loses sight of any wounded man even if he be convalescing in his distant village Kieff had some 30 000 beds for wounded soldiers, but it received daily from 2000 to 12 000 cases so all patients fit to travel were sent daily further on into Russia, by order, and at any rate 8 per cent of total cases The hospital was located in a polytechnic school and could take 750 cases, in canvas cots at first, but later iron bedsteads were supplied The experiences of the hospital as regards infected wounds, lice and so on, were similar to those reported from elsewhere Cases of Asiatic cholera and typhoid fever were seen in the great military hospitals, but the civil population was unusually free from epidemics in the summer of 1915 the peasants ignorantly and ungratefully ascribing this to the absence of the doctors now away with the troops There was no vodka, of course a drunken man was an unusual event To the interdiction of vodka is ascribed the lower frequency of insanity in this than in the Russo-Japanese War Also, there was practically no venereal disease among the Russian soldiers

The Journal of Bacteriology Being the Official Organ of the Society of American Bacteriologists Bimonthly Baltimore The Williams and Wilkins Company, London The Cambridge University Press Subscription 23s per annum —It is somewhat remarkable that there is as the publishers' announcement points out no journal in the English language which deals with bacteriological science as a whole This gap it is the aim of this new addition to our lists of scientific publications to fill It is to be the official organ of the Society of American Bacteriologists, and is to serve also as a medium for the discussion of such general questions—of interest to all bacteriologists whether engaged in medical technical, agricultural, or purely scientific research—as the structure and physiology of the microbes the inter relationships of microbic types the effects of physical and chemical agents on microbic life the mutual interactions of microbes growing together in various media, the nutritional needs and products of metabolic activity of various microbes new advances in technique, and so on There is no doubt that such a journal is sorely needed Bacteriologists dealing with any particular section are only too apt to regard that as the only important branch of the science and it might often be greatly to their advantage to know what was going on in other fields of work As Dr W T Sedgwick says in his foreword "Bacteriology must henceforward be recognised as a broad and fundamental branch of science coördinate with rather than subservient to the other grand divisions of biology, such as medicine agriculture zoology and botany The first number gives excellent promise The contents include a paper by Messrs Rettger Berman and Sturgess on the utilisation of proteid and non proteid nitrogen which goes to show that bacteria are unable to attack and bring about the destruction of proteins without the aid of enzymes or other proteolytic agents and this appears to be true in the case of albumoses and peptones as well as for more complex proteins like egg albumen James Sherman commences an elaborate study of the proteins in the soil and their relation to the bacterial flora a question of great importance in agriculture C G A Jones gives a complex peptone agar which will keep the meningococcus living and viable for many days and even as long as four weeks at room temperature M M Ohnishi shows that Bacillus is a much more suitable culture medium for B coli than lactose-peptone-ox bile permitting the development of twice as many colonies from water Some excellent abstracts conclude the first number of a useful and promising journal

THE LANCET.

LONDON, SATURDAY, JULY 8 1916

The State Promotion of Scientific Research

AT the recent Paris Economic Conference a resolution was passed urging the granting of State assistance to scientific research, while the question whether the State can usefully encourage research by granting sums of money for the purpose is naturally receiving considerable attention just now in this country, which has always been in the very front rank in producing discoverers What we have lacked is not so much the spirit of inquiry as the faculty of applying the results of our inquiries to practical purposes We have been too academic in this matter rather than too lazy, for as a rule, the British man of science shows irritation when asked as to the utility of this or that discovery But it is now recognised that our immediate requirement is to swell the ranks of investigators by affording financial help, to defray the expenses of the work, to give an adequate salary to the investigator and, as a further stimulus, to offer a substantial reward for the work of research when that work has materialised into valuable practical application The State must recognise, though few private individuals do, that negative results are often of the greatest importance and value Failures, of course, must mean a large expenditure of material, but after all when they are the sequel to honest and intelligent work, they necessarily narrow the issues of the inquiry and advance the purpose in view This is a truism which regularly fails to appeal to the British manufacturer who hesitates to spend more money when to his thinking, most of it is going, as he would say, 'down the sink He is in too great a hurry to see the fruits of research realised It is the opposite spirit which has gained for Germany her high position in technical science In an excellent series of articles upon the German economic position now appearing in the *Field* the expert economist who writes as 'Viator' attributes much of German commercial success to her large class of young men equipped to pursue research in subordinate positions and at low wages and gives instances of organised search for discovery both in physics and chemistry which have been crowned with success The Germans will spend years over an exploration when the procedures are attended by failure after failure with the conviction of gaining an ultimate triumph it will be true patriotism in us if we follow their lead here

But costly attacks upon many provinces of scientific learning cannot be maintained without financial support and this can hardly be expected invariably [illegible] private sources State and properly and scientifically organised, should provide the necessary funds where the proposed research is worth State interference If results of State importance are to be realised this position is becoming inevitable in many technical branches of science The grants from educational institutions, scientific societies, and corporations which have formed in the past the chief sources of support for research in this country, are totally inadequate for the prosecution of investigations the results of which are intended to create new industries The Advisory Council for Research appointed by the Board of Education may do some good in bringing scientific work more intimately to the knowledge of a Government department, but more can hardly be hoped in this direction Hitherto the sums of money granted by generous bodies and by occasional individual donors have nearly always been expended on research of an academic nature The investigation of underlying principles is of vital importance, but the work should not stop at theoretical considerations The possible significance of all the phenomena in industrial processes should early be studied and placed at the disposal of the manufacturer, and under conditions controlled by the State, where the State has found the money which made the research possible The actual working details of a scheme of State aided research will need to be carefully drawn up, and precautions taken to safeguard the interests of the true and first discoverer The Association of British Chemical Manufacturers has appointed a strong provisional committee to take steps to promote coöperation between British chemical manufacturers, who would then be in a position to place before Government information upon the chemical industry, so that industrial research may be promoted and technical organisation developed This seems to us to be a most practical way of meeting the situation, for under such a plan there is no vague wail to the State for help, but the directions in which assistance should be given by the State are indicated by those who know

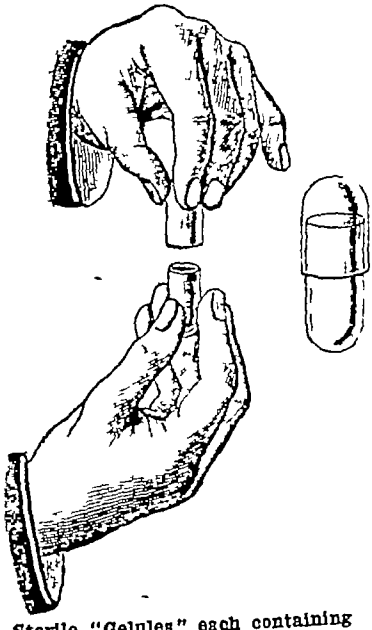
In this connexion the scheme for the promotion of scientific research presented to the public by Mr WALTER B PRIEST in 1905 should re claim attention particularly as he has now brought his ideas into line with present considerations We commented favourably upon this scheme on its appearance and if its underlying principles had then gained general, and especially official, acceptance it is probable that much time would have been saved, to this country and to the whole Allied cause—time which has been spent in mere preparation—while the present inconvenience of a shortage of material in so many directions would have been obviated to a large extent The war has opened our half closed eyes to the neglect and even discouragement displayed by the State towards scientific research Mr PRIEST's scheme provides for the ample compensation to the discoverer just as the Patents Acts offer a pecuniary prize to the inventor It may in fact be regarded as an extension of these Acts the clauses of which give an incentive not only to carrying out of research of industrial significance but to the prosecution of academic research

NEOCAINE-SURRENINE

NEW LOCAL ANÆSTHETIC. ***Effective and SAFE.***

"Neocaine-Surrenine gives marvellous results in the operation of extraction dental anæsthetisation in pulpectomy, and cases of periodontitis."

Odontology Professor Choquet.



Sterile "Gelules" each containing 0·05 gm or 0 50 Neocaine-Surrenine powder

Sterile Gelules" each containing 0·05 gm. or 0·50 Neocaine-Surrenine powder

COMPOSITION.

Pure **Neocaine**	1 gramme
Borated Adrenalin Takamine	2 milligrammes

STABILITY — **Neocaine-Surrenine** is in the form of a white powder which may be kept for any length of time in closed receptacles Partly emptied flasks should be kept dry

APPLICATIONS.

1—LOCAL ANÆSTHESIA BY INFILTRATION
2—REGIONAL ANÆSTHESIA.
3—RACHIANÆSTHESIA
4—ANÆSTHESIA BY EXTERNAL APPLICATION

ADVANTAGES

Nature and Duration of the Anæsthesia —The anæsthesia is complete from 5 to 15 minutes after the injection, it is very deep and much more prolonged than anæsthesia with Cocaine It lasts from 30 minutes to 1½ hours

TOXICITY —**Neocaine** is 8 to 10 times less toxic than Cocaine It does not provoke cerebral anæmia leading to syncope, it is a *cardiac tonic*

No appreciable depressant action on the leucocytic activity, which explains the feeble toxicity of our product

No local irritation if the injection is made aseptically

Progressive ischæmic action without any fear of secondary hæmorrhage

TECHNIQUE.

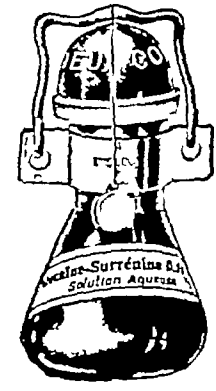
Employ the solution 1 in 5 or 1 in 10 The concentration of the solution will be as required always taking as a basis the fact that the maximum dose of pure **Neocaine-Surrenine** to be employed must not exceed 1 gm 50

TROPICAL COUNTRIES WITH HUMID ATMOSPHERE

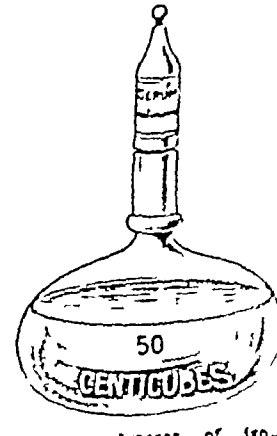
Our **Neocaine-Surrenine** "gelules are unsuitable for exportation to countries where the climate is both very hot and humid In this case we advise the purchase of pure **Neocaine-Surrenine** and ampoules matrasses or solution already prepared in ampoules

"Since the commencement of hostilities we employ Neocaine-Surrenine Corbiere which has given us every satisfaction"

Pouchet and Sourdat
Regional Anæsthesia.



Solutions prepared in Ampoules or Flasks ready for use



Ampoules matrasses of isotonic sterile Neocaine-Surrenine Solution, containing 50 & 100 c.c., ready for use in Regional Anæsthesia.

Full Literature and Clinical Reports on application to—

THE ANGLO-FRENCH DRUG CO, Ltd (late M BRESILLON & Co)
Gamage Buildings, Holborn London E C

Telephone Holborn 1311

Telegrams AMPSALVAS LONDON

the Central Medical War Committee, has been drawn up with particular regard to urban practices In country districts, for instance, the old question of mileage will occur and ask for separate treatment, but otherwise in country districts the arrangements for a deputy must naturally be far simpler than they ever can be in town communities, for in the country the public is limited by geography in its choice of a doctor A method of payment in proportion to receipts, a certain maximum and minimum weekly sum being laid down, is clearly a fair proposal, but some ingenuity will be required to meet the case where the deputy seeks cash payment and the patients are always used to being given credit But assuredly such matters can be dealt with by competent local committees

Annotations.

"Ne quid nimis"

THE SIGNIFICANCE OF THE AMINO-ACIDS

THE interesting group of bodies known as the amino acids is disclosing facts of the utmost importance in connexion with nutrition It is well known that on hydrolysis proteins break down by resolution of the polypeptide linkings in the molecule into an assembly of α amino acids, of which some 18 have been separated Enquiry is now being developed in directions which show that each of these substances possesses its own significance—sometimes greater, sometimes less—in the processes of nutrition Inasmuch as the proteins do not all alike resolve into the same amino acids, it is clear that their metabolic value will depend upon the kind of amino acid produced In an interesting and lucid lecture upon the subject delivered before the Chemical Society on May 18th by Dr F Gowland Hopkins, and now published in the June number of the society's journal, these newer standpoints in the study of nutrition — the title of the lecture—are carefully discussed The starting point of this study is that when a mixture of all the free amino acids obtainable from protein has entirely replaced the normal intact protein of their food an adult animal maintains itself and a young animal grows In his own experience Dr Hopkins records that scores of young animals grow steadily during experimental periods when no trace of intact protein, and no other source of flesh forming material save amino acids, was passing their mouths In a brief and excellent outline of the salient features of the problem Dr Frank P Underhill professor of pathological chemistry Yale University makes similar observations His conclusion is that the amino acids must be regarded as foodstuffs capable of supplying the nitrogenous needs of the organism and that the chief factors to be taken into account with regard to the nutritive value of any protein or proteins are the character and the extent of the amino acids contained therein Since it is mainly if not entirely in the form of free amino acids and not in complex association that the nitrogenous food begins its metabolism it is obviously valuable to be able to measure the relative nutritive importance of the different molecular groups in the protein molecule We could then determine, as Dr Hopkins points out, whether in any particular case the withdrawal of individual amino acids deprives the animal of something essential, or whether, perhaps, the removal from the food of any particular amino acid under study may have little effect, because the animal can synthesise it for itself or dispense with it altogether We may thus gain a further insight into the question of deficiency diseases It should be pointed out, however, that during the use of the synthetic diets suggested as a basis of inquiry, Dr Hopkins has found that it is always essential to supply the "at present mysterious vitamine or food hormone factor" The results of the experiments are very remarkable Thus when an animal is fed on food containing only tryptophan, histidine, tyrosine, lysine, and cystine, that is, five out of the 18 amino acids of protein, there is a remarkably slow loss of weight, and long maintenance of apparent health On the other hand, when the five amino acids mentioned are replaced by another five of simpler aliphatic type, when leucine, valine, alanine, and glycine, together with glutamic acid form the sole nitrogen supply, loss of weight is rapid and the animal soon succumbs A familiar case of a non nutritional protein is gelatin, and, significantly enough, this substance on hydrolysis yields neither tyrosine nor tryptophan The entire absence of tryptophan from its molecule stamps it at once, says Dr Hopkins, as a deficient foodstuff Dr Hopkins goes even so far as to say that he feels it quite possible that further experiment will show that life can be maintained on a mixture from which many of the amino acids are lacking This suggests that if nutrition can be guaranteed on a quite limited number of amino acids, the solution of the problem of artificially synthesising our food supply is brought within the region of possibility On all fours with this are the independent conclusions of Professor Underhill in the work already referred to Investigations of this character promise ultimately, he suggests, to lead to the assignment of more or less specific functions to the various amino acids, and hence will indirectly indicate the relative efficiency of this or that protein in bringing about a desired result in nutrition The whole story is a triumph of biochemical research

THE TRYPANOSOMES OF SLEEPING SICKNESS

THE South African Institute for Medical Research has recently issued a pamphlet[1] prepared by Mr G D Maynard, statistician and clinician to the Institute, on the Trypanosomes of Sleeping Sickness being a study of the grounds for the alleged identity of T brucei with those causing disease in man in Nyasaland The Sleeping Sickness Commission of the Royal Society in their sixteenth report seem to have satisfied themselves that the form of the malady met with in Nyasaland and Rhodesia was caused by a trypanosome believed to be common to all fly countries and that it was spread from wild animals to man It was therefore recommended that efforts should be made to diminish as far as possible the number of wild animals in fly areas and it was urged that every

also As Mr PRIEST points out, there are discoveries which have no marketable value and for the production of which, therefore, patent rights provide no incentives, and yet these discoveries may reveal knowledge of incalculable value Such are the discoveries, for example, which promote the public health, and it is a question whether the incentive of a substantial reward would not attract a much larger number of workers into the field of research and lead to a bigger harvest of results That, at all events, is what has happened in Germany, and the man who will not learn from the enemy is a pedant, not a patriot

The Practices of Absentee Medical Officers

THE fate of the practices of members of the medical profession who have accepted, or are accepting, commissions in the Royal Army Medical Corps has not received the amount of practical attention which the importance of the subject demands The fact that the practices of the absent medical men must in many cases suffer severely by the call which the needs of the country are making has often been insisted upon, but nothing definite has been done as yet to remedy what may become a widespread trouble and lead to frequent and infinite hardship It must, however, be clearly stated that the neglect, which on the face of it appears to have been grave, cannot be attributed as an actual blame to anyone It is true that no local committees have been formed with the exact intention of watching over the interests of the absentee practitioners, but the British Medical Association has made definite and strongly worded pronouncements on the necessity of those who remain safeguarding the property and professional and pecuniary look out of those who depart It is the individual practitioners themselves who have with extraordinary light heartedness disregarded the situation They have accepted commissions and in a large number of instances have gone from their homes without making, and without attempting to make, any provision for the abandoned patients This is tantamount to saying that, while no machinery has been erected for protecting the interests of the temporary officers of the Royal Army Medical Corps, there has been no general demand for such machinery from the direction where it might have been anticipated The Central Medical War Committee has now the whole matter under consideration, and the interference of this statutory body in a very difficult and important matter should be welcomed

A scheme has been laid before the Central Medical War Committee under which local committees can be instituted, to whom there may be submitted the agreement which it is suggested should be entered into by an absentee medical practitioner with his deputy The local committee is to be comprised of the practitioners of the district (if thought advisable the Local Medical War Committee can itself discharge the functions) and there would be relegated to it by the proposed agreement powers to deal with all disputes of whatsoever nature arising between the absentee and the deputy in regard to any question affecting the absentee s practice, or the carrying on of the same by the deputy, the decision of the local committee being binding on both parties Any medical man deciding to take a commission, or being called up for ordinary military service could thus give notice to the local committee stating whether he has made arrangements with a medical practitioner or practitioners to carry on his practice in his absence, and if so giving the necessary names and addresses To the various parties to such arrangements an agreement would then be submitted as forming a basis upon which the practice of the absentee could be carried on and restored to him upon return with, it is hoped, some approach to integrity Under the proposed agreement the practitioner, on departing, definitely appoints his deputy or deputies, contracts for the faithful and diligent discharge of the requirements of the practice, and provides payment for the substituted service on a scale of remuneration judged by the gross receipts of the practice, and capable of readjustment every six months The deputy undertakes to keep strict accounts and accurate entries of all moneys received, and to be responsible for the working costs incidental to the practice, which as far as possible should be carried on at the chief surgery of the practice, he also admits liability for all acts of negligence brought home to him The scope and intentions of the scheme and the draft legal agreement are in accordance with the above summary, the Central Medical War Committee has the details under consideration

It is quite clear that no scheme can exactly fit all kinds of practices It may indeed be said that every medical man s practice is to some extent an individual affair requiring individual treatment if its preservation and cultivation are to be of the best On the other hand, all medical practices have certain things in common, for with regard to them all there is a common need that when the principal is away some one should do his work for him, and prevent the practice from disappearing Assuredly one difficulty about any scheme must be that the public cannot be ordered to accept the services of Dr A because Dr B is absent, a certain proportion of a medical man s clientele will transfer themselves willingly to a nominated successor, but others will always prefer to choose a different practitioner Each man who deputises under the suggested agreement for an absent colleague may find that he has also to look after a certain number of patients belonging to other doctors not parties to the agreement and complications may arise here requiring some exhibition of judgment and skill if they are to be met with any uniform pattern of remedy Undoubtedly other objections more or less valid, will be forthcoming when the whole scheme is in the hands of those concerned but we cannot think that any criticisms will conceal the value of instituting a general plan for dealing with the situation the urgency of some action is admitted, and some action should be taken The scheme which is now under the consideration of

side of the tip, at a distance of 1 cm. from the extremity, a non fluctuating lump of the size of a filbert which was lost in the neighbouring indurated tissue On the following day the trouble increased. Articulation and even the taking of fluids were difficult and there was abundant salivation The lump did not sensibly vary in size and the surrounding area of inflammation was almost limited to the right side of the tongue The general condition was bad and the temperature was 104 When the formation of an abscess seemed probable the lump began to diminish and the symptoms regressed The tongue rapidly regained its normal suppleness, but a little redness at the tip and the submaxillary adenitis persisted On the eighth day the tumour had disappeared The measles ran a mild course, but terminated in slight suppurative otitis Hemiglossitis is rare In 1879 Guéneau de Mussy reported two cases very similar to the preceding one, but in neither was any recognised infection present The swelling was almost completely localised to the left side of the tongue, and resolution took place by the fifth day As to the pathology of this deep glossitis, Sabrazes and Bousquet described in 1897 a case followed by a necropsy There was an interstitial infiltration of the tongue by embryonic cells, with thrombosis of the veins The pathogenic agent was the streptococcus M Sainton thinks that in his case the lump was due to inflammation of the glands of Blandin or Nuhn The glands of this name are situated on either side of the mid line at a distance from it of ½ cm and of 1 cm from the edge of the tongue The centre of the lump corresponded to this position No doubt under the influence of the buccal inflammation of measles the gland became affected through its duct

THE IMPORTATION OF GERMAN SYNTHETIC DRUGS INTO AMERICA

WE are indebted to an American correspondent for the circular of the New York house of the Farbwerke Hoechst Company addressed to doctors in the United States informing them that—

Thanks to the good efforts of the State Department, the Allied Governments have consented to unmolested passage of a quantity of salvarsan neosalvarsan and novocain and that the German authorities despite the abnormal conditions have now permitted the exportation of these products to the United States The first shipment of salvarsan and neosalvarsan is on the way to this port on the s s *Nieuw Amsterdam* which is expected to reach here the early part of the week beginning May 22nd The only condition imposed upon us by the German Government is that strict guarantees have to be given on the part of this company that the shipments allowed to come from Germany are for use in this country only and under these circumstances there is nothing for us to do but to continue our method of direct distribution as practised since the outbreak of the war [illegible] withstanding advanced cost to us due to very materially increased cost of importation we shall maintain the schedule which has been in existence since April 1st 1915 namely [illegible] per ampule for salvarsan 0 6 gram and neosalvarsan [illegible] gram

We are informed that while no general undertaking has been given in regard to the shipment of such drugs their importation into the United States has been allowed by the Board of Trade in certain special cases In October and November last for example certain quantities were shipped for the use of the United States Army and Navy in consideration of the fact that the quantities required were at that time unobtainable elsewhere In December last a permit was granted for the shipment of what was stated to be a six months' supply of salvarsan and neosalvarsan for the whole of the United States of America on the understanding that at the end of the six months the United States of America would be self supporting in the matter of these drugs In January last a similar concession was made in regard to novocain, but no other permits have been granted

THE WELSH NATIONAL SCHOOL OF MEDICINE

IT is now nearly a year since Lord Pontypridd laid the foundation stone of the new buildings of the Welsh National School of Medicine at Cardiff Towards the erection of these buildings Sir William Thomas has given over £90,000 on condition that Treasury grants are sufficient for maintenance, while the efforts of Colonel E M Bruce Vaughan on behalf of the school have resulted in a contribution of over a quarter of a million of money The war has unfortunately interfered with the carrying out of the project, and has occasioned a delay of the Treasury grant The postponement is naturally a source of keen regret to its promoters, and must cause anxiety to all those who have the cause of medical education at heart and who view with dismay the probable shortage of medical men in the near future We welcome, therefore, the publication in brochure form of the speeches delivered last August at the inaugural proceedings at Cardiff by Lord Aberdare, Lord Pontypridd, Sir Ivor Herbert, Sir William Thomas, Sir William Osler, and Professor E H Starling, and trust that they may command a wide publicity The Royal Commission on University Education in Wales paid a visit last week to Cardiff and other university centres in Wales, and doubtless Sir William Osler's address at Bangor will substantially advance the cause of the Welsh National School of Medicine He spoke of the purposes of a medical school as threefold (1) The prevention of disease, (2) the solution of problems connected with the cure of disease, and (3) the teaching of medical science and practice Judged from this broad standpoint the Cardiff scheme cannot be considered too lavish, as the provision of facilities for research in the interests of public health is as important as the training of medical students

LUARGOL OR "102"

M Danysz, who has for some time past made a study of the cure of trypanosomiasis, has recently added to the therapeutic armamentarium a new product under the designation of "102," consisting of a bromo argento ammoniated arseno benzol The microbicide properties of silver salts have been long known, whence colloid silver has come into practical use for inunction and intravenous injection The results of Danysz's experiments with this substance are given in the issue of *Il Morgagni* for June 14th and show that it is more active than other arsenical preparations in trypanosomiasis, and that small doses frequently repeated give better results than the injection of the same quantity of the remedy in a single dose Luargol is an orange coloured powder insoluble in water but very soluble in sodic hydrate with which it forms a dark brown solution Ten centigrammes are soluble in 1 c c or better 1 5 c c of normal sodic hydrate, and this may be used for injection diluted with sterile distilled water to 1 per cent The apparatus supplied consists of a tube containing

wild animal destroyed or driven out would be one less source or centre of infection The Commission at the same time admitted that there were many difficulties in the way of carrying out this recommendation Mr Maynard, while agreeing that the conclusions of the Commission should not be treated lightly, recommends caution in entertaining them He takes exception to the suggestion that sleeping sickness exists unrecognised in the Union of South Africa He observes that the assumption that the disease occurs in hitherto unsuspected areas is apparently based entirely upon the presumed identity of the Trypanosoma brucei with the organism causing human trypanosomiasis in Nyasaland Mr Maynard tests some of the evidence brought forward by the mathematical methods of Professor Karl Pearson, especially with regard to the morphology of the organisms He is of opinion that the analysis of length distributions shows that the dimorphic trypanosomes dealt with—namely, T rhodesiense, T brucei, T gambiense, trypanosomes of Nyasaland sleeping sickness, and Nyasaland wild game strain, have certain features in common There is some evidence to suggest that there is less similarity between the Nyasaland human strain and T brucei than between T rhodesiense, of Stephens and Fantham, and T gambiense as recorded by these authors The analysis suggests to him that uniformity in treatment of strains, prior to the inoculation of rats, from which measurements are made, may be an important factor in determining the mean size and the variability of the components of the distributions No valid argument in regard to the identity or otherwise of T brucei and the trypanosome causing disease in man in Nyasaland, can, he thinks, be drawn at present from length measurement distributions At the present time, Mr Maynard says, the only valid arguments in favour of the identity of the trypanosome causing disease in Nyasaland with T brucei is to be drawn from experiments in regard to their pathogenicity for animals, and these, as well as such serological experiments as have been undertaken, negative, in his opinion, the supposition of identity or even of close relationship There is, he holds, no evidence at present from the known geographical distribution of T brucei to suggest that it is a cause of sleeping sickness in man, adding that even if it were found to produce disease in man this would of itself constitute no greater argument in favour of its identity with the Nyasaland human trypanosome than with T gambiense Mr Maynard expresses the opinion that from the foregoing it would appear that there is very little scientific evidence to support the contention that T brucei and the trypanosome causing sleeping sickness in Nyasaland are the same species, while there are some very valid reasons for regarding them as distinct Although the question may still be considered *sub judice* there does not seem to be any justification for entertaining a bias in favour of their identity, if this be admitted, it follows that the recommendations of the Commission, which are based on their assumed identity, do not rest on a sure foundation of fact Mr Maynard suggests certain alternative hypotheses as possible explanations of some of the facts Finally, he points out that unless an unmodified game strain be the cause of human trypanosomiasis—and the weight of evidence appears to him to be against this view—the human carrier is of much greater importance than the wild animal, and consequently the recommendations of the Commission cannot, unless considerably modified, be accepted as a satisfactory solution The wholesale destruction of the big game of Africa cannot be accomplished without profoundly affecting the economic position of the continent, nor, even if it could be satisfactorily carried out, can any positive guarantee be given that the situation in regard to sleeping sickness would be improved

THE RELATIVE PROPORTION OF BOYS AND GIRLS BORN DURING THE WAR

THERE is a widespread belief that the proportion of male births tends to rise under the conditions produced by warfare, and that this excess of boys has in the past been a useful factor in restoring the male population of a country whose manhood had been depleted by a long campaign It has been contended that, since famine and hardship are conditions of its production, this excess of boys does not occur in the case of the larger nations of the present world warfare, as these conditions are not present, at all events not yet The phenomenon should be noticeable, if statistics were available, in occupied Belgium and Serbia, not in England or France We have, however, seen a recent published statement to the effect that in France this year the number of males at birth greatly exceeds the number of females, and that in a Paris maternity hospital an overwhelming proportion of boys is being born We do not know the authority for such statements, but the figures in our possession do not confirm them At the Maternite Departementale in Châlons sur Marne, for which the matron in charge, Miss E M Pye, has furnished us the figures up to the end of May last 122 boys and 140 girls have been born to women of the distressed area of the Marne, where, if any where in France, the conditions are those of want and of strain

HEMIGLOSSITIS IN MEASLES

SOME catarrh of the mucous membrane of the mouth occurs in measles and may lead to ulceration, but glossitis is not mentioned as a complication in the text books At a meeting of the Société Medicale des Hôpitaux of Paris recently M Paul Sainton reported two cases In the first case the patient was a young soldier with such a painful swelling of the tongue that asphyxia was feared The swollen organ projected from the mouth, and he could neither speak nor take food The condition rapidly subsided but during the acute stage exploration of the tongue could not be carried out In the second case the patient was also a young soldier who on the third day of a slight attack of measles suddenly complained of difficulty of mastication Examination showed only some diffuse redness of the throat the tongue was white, furred and red at the edge There was submaxillary adenitis sufficient to explain the patient's trouble But on the following day the temperature, previously normal rose to 100 4 F, the mouth was closed and speech and deglutition were difficult There were spontaneous pains in the tongue and all its movements were painful It was put out with difficulty and the mouth was opened with pain The tip was swollen and its bright red colour contrasted with the coating of fur on the middle of the tongue Palpation which was painful showed on the right

THE USE OF AMMONIA IN THE CHLORINATION OF WATER

By JOSEPH RACE, F I C,
CAPTAIN CANADIAN ARMY HYDROLOGICAL CORPS

In the course of some experiments on the effect of colour turbidity and temperature on the chlorination of water I thought it would be interesting to determine the relative efficiencies of various hypochlorites Nothing worthy of mention was observed until ammonium hypochlorite was used This was prepared in solution by the double decomposition of calcium hypochlorite and ammonium oxalate and great care was exercised to prevent the addition of an excess of oxalate which if present would introduce a factor of unknown value It was anticipated that the reaction would proceed somewhat along the lines represented by the following equation —

$$\underset{\text{Calcium hypochlorite}}{Ca(OCl)_2} + \underset{\text{Ammonium oxalate}}{(NH_4)_2C_2O_4} = \underset{\text{Calcium oxalate}}{CaC_2O_4} + \underset{\text{Ammonium hypochlorite}}{2NH_4OCl}$$

The calcium oxalate was deposited by centrifuging at a high speed and the supernatant liquid removed for experimental work

In testing the effect of this solution on a culture of B coli communior seeded into raw Ottawa River water I was much surprised to find that the germicidal value was very much in excess of the hypochlorites of calcium sodium and potassium The velocity of the reaction as calculated by the formula $k = \frac{\log \frac{N_1}{N_2}}{t_2 - t_1}$, in which N_1 represents the number of organisms at t_1 and N_2 at t_2 showed that with 0 3 part per million of available chlorine in each instance the value of K for ammonium hypochlorite was twenty to thirty times as great as that of calcium hypochlorite This experiment was confirmed by others which gave similar results

In searching for an explanation of the above phenomenon it occurred to me that it was probable that ammonium hypochlorite was exceedingly unstable in dilute solution and spontaneously decomposed into chloramine and water as represented by the following equation —

$$\underset{\text{Ammonium hypochlorite}}{NH_4OCl} = \underset{\text{Chloramine}}{NH_2Cl} + \underset{\text{Water}}{H_2O}$$

Chloramine has been shown by Rideal[1] to have a much greater germicidal action than an equivalent of chlorine Rideal deduced this fact from experiments on the chlorination of sewage in which he found that the first rapid consumption of chlorine or hypochlorite was succeeded by a slow action which continued for some hours even days and was attended by a germicidal power after free chlorine or hypochlorite had disappeared It became evident that chlorine in supplement to its oxidising action which had been exhausted was acting by substitution of hydrogen in ammonia and organic compounds yielding products more or less germicidal He supported this by determining the carbolic coefficients of hypochlorite and of hypochlorite with the addition of an equivalent of ammonia These gave values of 2 18 and 6 36 respectively Although Rideal seems to have made this experiment merely for the purpose of explaining an observed phenomenon it is evident that the possibilities of its practical application to town and sewage disinfection seem to have been either totally overlooked or disregarded on account of economic considerations

[illegible] the above mentioned facts in connexion with ammonia — hypochlorite I followed up Rideal's work and [illegible] of chloramine by the addition of ammonia to calcium hypochlorite [illegible] that the germicidal power as the chloramine production increased approximately [illegible] of hypochlorite

[illegible] determine the [illegible] of ammonia [illegible] the [illegible] ammonia [illegible] NH_3 [illegible]

did not produce results commensurate with the increase of ammonia. Half an equivalent of ammonia, or chlorine ammonia = 4 1, gave inferior results, but the reduction in efficiency was very much smaller than the reduction in the ammonia. The relative proportions of chlorine and ammonia must also be considered from the economic standpoint and when this process is carried out on a large scale these various considerations will demand a rather fine adjustment

A remarkable feature of the treatment of water with a mixture of hypochlorite and ammonia is the almost entire absence of absorption On adding bleach to the Ottawa River water so as to produce a mixture containing 10 parts per million of available chlorine about 35 per cent is absorbed in five minutes at 60° F and 60 per cent. within one hour If an equivalent of ammonia is first added to the bleach, only 1 4 per cent of the available chlorine is absorbed in one hour and 3 2 per cent in 20 hours As there is practically no absorption of the germicidal agent, the longer the contact period the better will be the results obtained For instantaneous sterilisation the relative efficiency ratio of 3 1, for the mixture of chlorine and ammonia as compared with chlorine cannot be obtained but with increase of contact period the efficiency ratio also increases and after about 40 minutes the ratio becomes greater—3 1. The germicidal action of the mixture continues to persist on account of non absorption and for a comparatively long time and as a consequence of this no aftergrowths are produced

Cost —Basing the calculations on a ratio of one equivalent of ammonia to one equivalent of available chlorine (0 5 part per million NH_3 to 1 0 part per million available chlorine)—a very conservative estimate of the most efficient ratio—this process becomes economical when the price of hypochlorite exceeds 8*s* 4*d* per 100 lb This statement is based on the mixture produced being three times as efficient as hypochlorite that 33 per cent of available chlorine can be obtained from bleach and that ammonia can be purchased at 1*s* per lb The efficiency ratios of 3 1 can be obtained under the conditions of chlorination usually found, and no alteration in the point of application will be required Bleach containing more than 33 per cent of available chlorine can be obtained but very few plants actually extract more than this amount as there are certain losses which are unavoidable The present price of ammonia solution 16° B is quoted in the United States of America at 2¼ to 2½ cents per lb This solution contains 10 3 per cent of NH_3 and the anhydrous ammonia is therefore worth 22 to 25 cents or approximately 1*s* per lb In Ottawa bleach can be obtained for 14*s* 9*d* per 100 lb and by the adoption of the ammonia process the heavy dosage of 1 part per million of available chlorine required to treat the Ottawa River water (colour 40 parts per million platinum scale) can be reduced to 0 33 part per million, with a saving of about 28*s* per day or £500 per annum, if the laboratory results can be duplicated under service conditions. In the United States where much higher prices prevail for bleach the advantage to be gained by the substitution of the ammonia process is of course even greater

Esthetic consideration —For some years it has been considered as at least probable that the fishy odour and taste of heavily chlorinated water was caused not by the chlorine or hypochlorite but by substituted nitrogenous compounds At first sight it would appear that by the addition of the substituted nitrogenous compounds contained in the ammonia mixture this objection would be accentuated and might deprive the process of its practical value In practice no such result is obtained and no trace of the added mixture can be detected As the total amount of chlorine added to the water is only about one-third of the usual dosage the total amount of chlorine compounds nitrogenous and other wise is only one third also and comparative results as to taste and odour should be reduced and not increased by the adoption of the new process since the compounds produced are totally different in the two cases

Since writing the foregoing I have applied the above process to a small plant treating 2 0 000 imperial gallons per day and have met with unexpected difficulties When a 10 per cent solution of bleach was made and strong ammonia (0 [illegible]) [illegible] of available chlorine [illegible] the hypochlorite [illegible] before adding the ammonia [illegible] [illegible] laboratory experiments [illegible] the [illegible] complete [illegible]

the dose of luargol, a flask with 20 c c of the diluted sodic hydrate, and a filter in a glass tube The contents of the tube are dropped into the flask and shaken for five minutes until completely dissolved, the filter tube is then fitted on and the whole sucked up into a syringe of 20 c c capacity For syphilis Danysz advises progressive doses of 15, 20, 25, and 30 centigrammes up to a total of 1 20 to 1 50 gm, with intervals of two, three, and four days between each injection The febrile and general reaction is certainly much less than with salvarsan In tolerance is rarely observed, even slight arsenical erythema is infrequent Herxheimer's reaction occurs with "102," as with every other anti syphilitic remedy, as might be expected Thus, a roseola treated with 0 10 gramme became more copious, red, and inflamed on the following day, while the temperature rose to 39° C, with the usual phenomena of Herxheimer's reaction, shivering, headache, and sweating, on the other hand, there was no vomiting or diarrhœa, the usual phenomena of intolerance From the point of view of disagreeable concomitants, therefore, "102' seems to offer an advantage over "606" and "914" There is, however, a possibility of the occurrence of slight venous thrombosis at the point of injection when the requisite technique is not rigorously carried out Danysz attributes this thrombosis to insufficiency of soda in the solution, but these risks are reduced to a minimum by using the apparatus supplied commercially Lastly, the therapeutic activity of luargol is decided, syphilitic manifestations disappearing with much greater rapidity than with "606" and "914," especially in secondary ulcerative forms in which "606" often fails This new preparation marks a progress in the treatment of syphilis and deserves further extended trials

THE "VOMITING SICKNESS" OF JAMAICA

IN a report by Dr H Harold Scott, Government bacteriologist to Jamaica, which on account of war economy is not being printed in full but appears in abstract in the *Tropical Diseases Bulletin* (vol vii, No 6), an important investigation is given of a disease which for many years past has been a veritable scourge on the island The term "vomiting sickness" has apparently been long used in Jamaica to cover any disease occurring in the cooler months and associated with vomiting and convulsions, but is now becoming restricted to an affection of which the symptoms and post mortem changes are not those of any known disease The case mortality is above 80 per cent, and the toll of deaths is heavy Major T J Potter, R A M C came to the conclusion in 1912 that the majority of deaths ascribed to vomiting sickness were due to yellow fever, but Seidelin, who in 1913 was the first to give a detailed description of the morbid anatomy, showed that the condition was neither yellow fever nor cerebro spinal fever Dr Scott's own investigation on a typical and severe outbreak in February, 1915, revealed the fact that in a majority of cases where a trustworthy history was obtainable ackees—the fruit of the tree *Blighia sapida*—had formed part of the last meal taken Under certain conditions ackees are known to be poisonous, and in a case of such poisoning in a human subject Dr Scott noted the same symptoms and post mortem findings as occur in vomiting sickness He observed also that in animals to which an aqueous extract of unopened ackees had been given similar manifestations occurred He considers that all the characteristics of the sickness find ready explanation in the ackee theory—viz (1) the peculiar seasonal prevalence, (2) its confinement to Jamaica, so far as is known, (3) the sudden onset of symptoms in apparent good health, and in the well nourished as in the emaciated, (4) the rapid and complete recovery of non fatal cases, (5) the affection of several members in one house or close neighbours in a settlement, (6) the vastly greater preponderance in children, (7) the absence of preference as regards sex, (8) the rarity of occurrence in white children and in East Indians, and (9) the pathological changes induced Dr Scott's exhaustive investigation will go far towards settling the origin of Jamaican vomiting sickness, and it remains to isolate and identify the actual poisonous substance in the fruit His paper appeared at length in the April number of the *Annals of Tropical Medicine and Parasitology*[1]

THE ROYAL SOCIETY OF MEDICINE SECTION OF OTOLOGY

IT has been arranged to hold a special discussion on "Warfare Injuries and Neuroses of Otological Interest" on Friday, Feb 16th, 1917, at 5 p m This early notice is given in the hope that those interested will prepare reports of cases to submit to the meeting, and will send full particulars of them not later than Nov 30th to Mr E D D Davis 81, Harley street, W The council hope that if they receive sufficient material they will be able to classify and group the cases, as this should add to the value of the discussion, and it is therefore suggested that those sending in cases should later on send a further report on the progress of the cases, these additional reports should be received before the middle of January Pathological notes of any fatal cases will, we understand, be considered extremely valuable

THE Harben lectures for 1916 will be delivered at the Royal Institute of Public Health, 37, Russell square, W C, on Thursdays, July 13th, 20th and 27th, at 5 P M, by Dr A C Houston, F R S Edin., Director of Water Examinations to the Metropolitan Water Board The subject chosen for the lectures is "Rivers as Sources of Water supply

[1] THE LANCET June 17th 1916 p 1222

METROPOLITAN HOSPITAL SUNDAY FUND—The following are among the chief amounts received at the Mansion House up to the middle of the week —

Anon £1000 Mr William Herring and Anon £500 each Messrs Watts Watts and Co £210 Mr Alexander Miller £200; Bristol Independent Church £181 The Temple Church £142; S Peters Vere street £118 St John's Parish £110 Christ Church Chiswick £1[illegible] Corporation of London United National Collieries and Westminster Chapel £105 each Sir W Vaughan Morgan Lieutenant Colonel [illegible] Nisbett Messrs Slocock Brothers Sir Savile Crossley Mr W D Graham Menzies Messrs George Williamson and Co Messrs B[illegible] Green Jourdain and Co Messrs Bessler Waechter and Co [illegible] E Norris £100 each St Marks Islington £[illegible] St Philip's Kensington £[illegible] St Andrew's Trognal £[illegible] All Saints South Hampstead £[illegible] Regent Square Presbyterian Church £[illegible] £[illegible] Holy Trinity Fulham £[illegible] £[illegible] Crouch Hill Presbyterian Church and [illegible] each St Michael's Islington £[illegible] Marylebone Presbyterian Church £[illegible] The Chapels Royal £[illegible] St Luke's [illegible] Messrs Pylands and Son and [illegible] S Ashton Messrs W Clay and Son [illegible] Messrs Pylands and Son [illegible] each Christ Church [illegible] Otto Bel [illegible] D Walker [illegible] Alexander and Son [illegible] £[illegible]

The total already available for distribution amounts to about £50,000

killed) have been awarded the D S O, and 7 have received the Military Cross

After the transaction of formal business a cordial vote of thanks to the chairman for the services which he renders to the College as treasurer was carried with acclamation

The report of the scrutineers showed that the following had received the largest number of votes at the election and were consequently elected —Pensioners Isabella S V Wall (highest pensioner), Mary Molineux (ordinary pensioner), Katherine Lambkin (ordinary pensioner) Annuitants Eliza G Stevens (Morgan annuitant), Emily Wallace (Brodie Sewell annuitant) Foundation Scholars Thomas A Mason, John R Simpson, William R Pike, Alexander Shiels Robert G G Evans was also admitted a Foundation Scholar, an additional vacancy having occurred since the voting papers were issued

THE SERVICES

ROYAL NAVY MEDICAL SERVICE

In accordance with the provisions of Order in Council of April 1st, 1881, the undermentioned Fleet-Surgeons have been placed on the retired list A G Andrews, E H Hodnet de Courtmacsherry, and T C Meikle

ARMY MEDICAL SERVICE

Lieutenant Colonel Sir James K Fowler K C V O, P A M C (T F), to be temporary Colonel

ROYAL ARMY MEDICAL CORPS

Lieutenant Colonel J S Green is retained on the Active List under the provisions of Articles 120 and 522 Royal Warrant for Pay and Promotion, and to be supernumerary

Surgeon Major W S Henderson, K E Horse, relinquishes the rank of temporary Lieutenant Colonel on reposting

Temporary Major E H Starling to be temporary Lieutenant-Colonel

Majors relinquishing the rank of temporary Lieutenant-Colonel on reposting R Storrs, J W Jennings D S O (ret), D Ahern, M C Beatty, and (temporary) E L Gowlland

The undermentioned relinquish their temporary rank Major (temporary Lieutenant Colonel) Richard B Hole and Captain (temporary Major) J W Lane

E D Hancock to be temporary Major whilst employed at the Guildford War Hospital

The undermentioned temporary Captains relinquish their commissions M L G Hallwright, O Eaton A Burton, W D Chambers and E P Dickin

Temporary Captain J Craig relinquishes his commission on account of ill health

Temporary Lieutenants to be temporary Captains G H Alabaster F H Roberts, J R MacNeill, A W Harvey, H St A Agate G M Adam, W A Alexander, I W A Longford, C H Lloyd, S F Humphreys, W K Bigger H I P Yorke W G F Allen, R Farrant W Reid, S Churchill, J G Willmore W C Gowdey, F W Diamond S C W Morris T J Costello, J R White W J Patterson J L Pearce O J W Adamson G B McCaul S Greenwood, L L Fyfe, J B Belanger C D Kean, F R Kirkham, P S Hopkins T A Hindmarsh T J Keenan A A Wilson I F Bruneau J T Grant W F Law I G O Donohoe F J Allen J MacRae, A J Ross A A O Connor P P J Stewart F C Bowden, T C Findlater J H Davis, W S Hall D B J Hallet D J Lewis, G I May I J Rawlinson, H O Smith J R K Thomson, W J Hare F J Griffiths H C Beasley H H Kendrick D J McLeish, H M C Green F H Black C R Wills J W Coulter D B MacLean, C J Knight J Zealand A J Menzies, H B Lawson H Southwaite W Watkins S R Gleed A B Jones J M Keenan H B Walker T J Cottu C H Corbett H U Leembruggen S Holgson J J Paterson A St J Harman H J T Chambers W W Finington G V T J Michael C Banks J D Ivan A G Christian A C Roberts A B Fyfe J A A Matthews R B J Mehail, T A O'Brien A A W Patrick F J Sells W R Logan A Gray T Chalmers J W Finington A Gillespie W O Taylor C J Dillon J A Wilson C A Meyden A J H J Mitchell J Lament J N Donnellan C J H A C Hewson J Nicol J A A Orlebar F S J C Barbie C H Lekers D B Greer G J Thornton H H Hewson W G J Wanless J J Mel Lane C S J J Reid N J Jackson O J Finch W H G Hewson J Nugent A M Lyme T J Craig T J Davis H J Jackson H H Serpell A J Wilson J H Hutton A G Milne J Harper J W Wallace A C Stack J J H Jones J D Harper W S Stack J W Dodge C C Carl J

Bruce Low, N Dunn, G M Gregoire, H P Gaston, and R Stirling

To be temporary Lieutenants D V O'Malley, K. S Macky, T B A. Haggard, A Morrison F E Dowling, J L Gordon, W J P Lillis S Verdon Roe, J E Finlay, G Dougan A F Fraser, I W Dickson, E F Hoare, G A Campbell L Bensted, F C Morgan, A. E Hunter, C W Budden, F Kinnear, J F C O'Donohoe, H E T Dawes, A W Brodribb, T H Martin, M J Loughrey, J H Fryer, P A Dykes J Graham, H Whitwell J Lindsay, W D Hopkins, D McCormack, F H Cooke, C J B Pasley D F Kennard, and D Campbell (from Second Lieutenant, Indian Army Reserve of Officers)

To be temporary Honorary Lieutenants whilst serving with No 8 British Red Cross (Baltic and Corn Exchange) Hospital C E Drennan, E Aylward, and S Wicks

Temporary Lieutenant R Marshall to be temporary Honorary Lieutenant

Temporary Lieutenants relinquishing their commissions J Forbes, R McL Wishart, W W Wood, J Maxwell, T H D Storms, L E Belcourt, M R Helliwell, J J Brown, C A H Gee, W G Southey, C J Tisdall, L Valentine, A. M A James, J H Rowe, J Laird, G E Beggs, J W Jackson, S R Johnston, J J Thomson, P MacKasey G L Kennedy, W J MacNab, J Pearson D K Parkes, W R Taylor, P P Wright, B E Lang, O Van Luven D E Scott, E J de Beaupre, S A Overend, C M Keillor H K Groff R B Martin, K. L MacKinnon, S K McKee, LeB B Wilmot R W McQuay, J S Chisholm, J H Fisher, E Lachopelle, W L Robertson, L J Pellow, W Turner, and B J Nolan (on account of ill health)

Temporary Honorary Lieutenant Harold L Hughes relinquishes his commission on account of ill health

Temporary Honorary Lieutenants to be temporary Lieutenants A W Adams and W L Thomas

Canadian Army Medical Corps To be temporary Captains T Coleman, W Filmer Coy J G MacNeill, W H McMillan, M G Brown, C L Blight W G Blair, A E Blackett, R A Dowd, J S Fitzsimmons E R Graham, S E Holmes N MacL Harris F D Sinclair, B C Reynolds, L R Shier, C C Schlichter, Lieutenant A J Lomas (Canadian Militia), E Gardner, and J H Slayter

INDIAN MEDICAL SERVICE

Lieutenant-Colonel L P More, R A M C, to be an Assistant Director of Medical Services, vice Colonel E Eckersley, A M S

Colonel W R Edwards, C B, C M G, to be Surgeon General

Lieutenant-Colonels to be Colonels J T Daly, G J H Bell, C I E, H Fooks, and W H B Robinson

TERRITORIAL FORCE

Royal Army Medical Corps

North Midland Field Ambulance Lieutenants to be Captains F C Pridham J Howard and D A. Wilson

East Anglian Field Ambulance Lieutenant J Humphrey to be Captain

Home Counties Field Ambulance H England and S K Mckee (late temporary Lieutenant, R A M C) to be Lieutenants

London General Hospital Lieutenant Colonel Sir J K Fowler, K C V O is seconded whilst holding a commission as temporary Colonel R A M C Captain I H Humphris is restored to the establishment

Western General Hospital Captain K W Monsarrat is seconded whilst holding a commission as temporary Major R A M C

North Midland Mounted Brigade Field Ambulance Lieutenant J M Mitchell to be Captain

West Lancashire Field Ambulance Lieutenant A V Glendenning to be Captain

Welsh Field Ambulance Lieutenants to be Captains W Sankey and R Willan

Southern General Hospital Major R H Lucy relinquishes his commission on account of ill health

Sanitary Service R A Farrar late temporary Major R A M C to be Major (temporary) whose services will be available on mobilisation

London Sanitary Company Lieutenants M S Briggs and H S Tebbit to be Captains

London Field Ambulance Captains J W K Bird L Milton C J Leder W J T Kimber, I B Clarke I L Preston A I Comyn and A H P Smith from General Hospitals to be Captains Captain H I Ashe from a London General Hospital to be Captain

East Anglian Casualty Clearing Station Lieutenant (temporary Captain) F W Lewis to be Captain

London Casualty Clearing Station Captains W H Lloyd and W J H Lewis [illegible] from General Hospitals to be Captains

Eastern Mounted Brigade Field Ambulance Major W Archibald to be temporary Lieutenant Colonel while [illegible] Field Ambulance

concentrated solutions, and also that the loss could be obviated by immediate dilution with large volumes of water The arrangements in the experimental plant are now being altered so that the ammonia and hypochlorite will only mix for a few seconds before dilution with the raw water in the intake pipe

Although various details have yet to be worked out, these notes are published in the hope that others will take up this work and endeavour to work out a process that will give some relief from the present exorbitant price of hypochlorite

Ottawa Civic Laboratories

PARIS

(FROM OUR OWN CORRESPONDENT)

The Influence of Syphilis on the Wounds of War

THE influence of syphilis on the effects of traumatism has long been known, and is now being freely observed in military patients The consolidation of fractures, in particular, is slower in syphilitic subjects, the callus though more profuse is more friable Dr Sourdel a surgeon with the army, has drawn attention to several points in this connexion, mentioning that the influences of syphilis on the wounds of war manifest themselves not at first but in the later stages of treatment A wound involving skin and muscle, for example, will be found slow in cicatrisation, the borders becoming livid and badly vascularised, but the unhealthy conditions will disappear rapidly on the application of a specific dressing like Vigo's plaster In suppurating conditions after operations on the knee joint, after a long period of discharge there will be rapid amelioration, but there will be fistulous tracts, and these will continue to discharge with defined edges as though punched out If a specific history is obtained, drastic treatment like the intravenous injection of cyanide of mercury will generally give good results Syphilitic subjects are liable to secondary hæmorrhage, and minor causes—the irritation of a ligature, a drain or a small foreign body—produce in them serious results even hæmorrhages to the point of anæmia If these patients are submitted to some such specific treatment as hypodermic injection of biniodide of mercury, the tendency to hæmorrhage will disappear and cicatrisation will proceed normally Dr Sourdel recommends the specific treatment for syphilis of every wounded syphilitic subject especially where any abnormality occurs in the course of the healing of the injury

Public Health and the Cinema

Professor Raphael Blanchard has represented to the Academy of Medicine the advantage of using the cinema to spread valuable hygienic notions among the public in a striking manner The idea is a sound one, and already the sanitary services have organised cinematograph displays comprising many valuable scientific records It is altogether desirable that the spectators at these shows while being interested in the display, should learn the elementary facts concerning the diffusion of disease

Transplantation of Cartilage in Reparative Surgery

Dr Morestin brought before the Academy of Medicine a subject of great practical interest at the present moment—viz. the role which the transplantation of cartilage may be destined to play in the vast domain of reparative surgery Cartilaginous props have already been employed for the flaps in plastic nasal surgery But Dr Morestin's new method consists in a wide extension of this principle in the repair of cranium and of the bones of the face. Of all the tissues none can be grafted more easily than cartilage which is not merely tolerated by the tissues into which it is transplanted, but lives and flourishes there It has no tendency to be absorbed and only undergoes trifling modification The graft is therefore a stable one and can be utilised with confidence Cartilage commends itself also as a graft on account of the extreme ease with which it can be cut into any form by means of a simple bistoury In practice it is always the costal cartilages which are employed particularly the sixth to eighth, the removal of which has no unpleasant consequences Fragments of cartilage from another subject may also be employed With such grafts we are in possession of an easy and certain procedure for making good losses of cranial substance even if these are large and irregular The method is specially suitable for replacing portions of frontal bone or of the orbital margins Even the malar arch can be thus restored, or the greater part of the maxillary bone replaced The hope is justified that in cases where the orbit has been extensively damaged conditions suitable for a proper prosthesis may be attained by means of cartilaginous fragments In repairing limbs, especially the hand and foot, the procedure should have some useful application

The Sign of the Crossed Leg in Raised Arterial Tension

A simple clinical observation may be of service in the diagnosis of increased arterial tension The sign consists in the measurement by the eye of the shock produced by arterial momentum in the leg which is crossed over the other, a shock due to the partial obstruction produced at the level of the popliteal vessels The patient is asked simply to cross one leg over the other in the ordinary way Normally the upper leg does not apparently show any spontaneous movement, or it requires careful attention to note the oscillation synchronous with the arterial pulsation But this is not the case in observing the subject of plus tension Dr Molle has noted that oscillation due to the arterial shock begins to be apparent with a systolic pressure of 160 to 170 mm and is marked with a pressure over 170 mm The observer should carefully watch the limb from the side, and he will be surprised at the ease with which the movement can be registered The sign may be made still more striking by covering the limb with a piece of paper such as a folded journal when the amplitude of movement may become remarkable The observation may be compared with one made by Delpeuch in 1900 He noted rhythmic shocks of the head when placed in certain positions synchronous with arterial pulsation in cases of aortic lesion especially aortic insufficiency

July 4th

EPSOM COLLEGE

THE annual general meeting of the governors of Epsom College was held at the office in Soho square on June 30th when the Treasurer, Sir Henry [illegible] occupied the chair supported by many representative [illegible] Sir HENRY MORRIS referred to the loss which the [illegible] had sustained in the death of two of their members [illegible] Thomas Boor Crosby and Mr Stanley Boyd. In referring to the reduced receipts from subscriptions as a result of the war, he mentioned that one member of the council had recently procured in less than two months a sum of over 40 guineas in annual subscriptions, and he expressed the hope that other governors would endeavour to bring the work of the foundation before their friends He expressed the appreciation of the council at the services rendered to the College by the *British Medical Journal* and THE LANCET adding that the British Medical Association had rendered special help in collecting contributions and that the Medical Insurance Agency had recently sent a donation of £100 which brought the total of the donations of the Agency to over £500 within a very short space of time He expressed the regret of the council at the death of the Rev W A Thomas, a master of the College for 32 years who throughout that period had won the affections of many generations of boys as well as of his colleagues on the staff by all of whom he was deeply respected

The report showed that the foundation and the trust funds render assistance to 100 pensioners medical men or the widows and aged daughters of medical men in reduced circumstances and that 50 sons of medical men are being boarded educated and clothed at Epsom College free of charge The report further stated that although the numbers in the school were at first slightly affected by the war the College is now full the total number of boys being 305 as against 273 at the corresponding period last year The report also included a good list of scholastic honours gained and mentioned that over 520 Old Epsomians are serving with the forces of whom 420 have joined since the outbreak of war while in the roll of honour are [illegible] 21 who have been killed in action 4 who have died [illegible] 40 wounded—two of them twice [illegible] Twenty seven Old Epsomians have [illegible] been mentioned in despatches—4 of them twice 3 [illegible]

killed) have been awarded the D S O , and 7 have received the Military Cross

After the transaction of formal business a cordial vote of thanks to the chairman for the services which he renders to the College as treasurer was carried with acclamation

The report of the scrutineers showed that the following had received the largest number of votes at the election and were consequently elected —Pensioners Isabella S V Wall (highest pensioner), Mary Molineux (ordinary pensioner), Katherine Lambkin (ordinary pensioner) Annuitants Eliza G Stevens (Morgan annuitant), Emily Wallace (Brodie Sewell annuitant) Foundation Scholars Thomas A Mason, John R Simpson, William R Pike, Alexander Shiels Robert G G Evans was also admitted a Foundation Scholar, an additional vacancy having occurred since the voting papers were issued

THE SERVICES

ROYAL NAVY MEDICAL SERVICE

In accordance with the provisions of Order in Council of April 1st, 1881, the undermentioned Fleet-Surgeons have been placed on the retired list A G Andrews E H Hodnet de Courtmacsherry, and T C Meikle

ARMY MEDICAL SERVICE

Lieutenant-Colonel Sir James K Fowler K C V O , R.A.M.C (T.F), to be temporary Colonel

ROYAL ARMY MEDICAL CORPS

Lieutenant-Colonel J S Green is retained on the Active List under the provisions of Articles 120 and 522, Royal Warrant for Pay and Promotion, and to be supernumerary

Surgeon Major W S Henderson, K E Horse, relinquishes the rank of temporary Lieutenant-Colonel on reposting

Temporary Major E H Starling to be temporary Lieutenant-Colonel

Majors relinquishing the rank of temporary Lieutenant-Colonel on reposting R Storrs, J W Jennings D S O (ret), D Ahern M C Beatty, and (temporary) E L Gowlland

The undermentioned relinquish their temporary rank Major (temporary Lieutenant-Colonel) Richard B Hole and Captain (temporary Major) J W Lane

E D Hancock to be temporary Major whilst employed at the Guildford War Hospital

The undermentioned temporary Captains relinquish their commissions M L G Hallwright, O Eaton, A. Burton, W D Chambers and E P Dickin

Temporary Captain J Craig relinquishes his commission on account of ill health

Temporary Lieutenants to be temporary Captains G H Alabaster E H Roberts, J R MacNeill, A W Harvey, H St A Agate, G M Adam, W A Alexander, F W A. Ponsford, C H Lloyd, S E Humphreys, W K. Bigger, H. E P Yorke, W G E Allen, R Farrant, W Reid, S Churchill, J G Willmore, W C Gowdey, F W Diamond, S C W Morris, T J Costello, J R White, W J Patterson J L Pearce, O J W Adamson, G B McCaul, S Greenwood, L L Fyfe, P B Belanger, C D Kean, F R Kirkham, P S Hopkins, T A. Hindmarsh, T F Keenan A A Wilson, I E Bruneau, R T Grant, W F Law, F G O'Donohoe, F J Allen, J MacRae, A. F Ross A. A. O'Connor P P J Stewart E C Bowden, T C Findlater, J H Davis, W S Hall, D B I Hallett, D J Lewis, G F May, F J Rawlinson, H O Smith, J R K Thomson, W. F Hare, E J Griffiths, H C Beasley, H H Kendrick, D J McLeish, H M C Green, E H. Black, C R Wills, J W Coulter, D B MacLean C F Knight, L Zealand A. F Menzies, H B Lawson, H Smurthwaite, W Watkins, S R Gleed, A B Jones J M Keegan, H. B Walker T E Cottu, C H Corbett, H. U Leembruggen S Hodgson, J E Paterson, A St J Bateman, H F T Chambers, W W Linington, G V T McMichael, C Banks, J D Ryan A. G Christian A. O'Flaherty V B Kyle J A V Mathews, R B F McKail, T A O'Brien A. A W Petrie, E J Selby W R Logan A. Grant T Chalmers, J W Edington A Gillespie W O Travis, C E Dolling E A Wilson C A. Meaden A E Hutton J Appleyard, J Lamont, J N Donnellan, C E Droop, A. C Bryson, R Nicoll J A A Orlebar E S Holloway, J T Grant O C G Shields, W H H Parsons, M C Burke G H Roberts D B Crerar G L Thornton, G H Brown W G L Wambeck J McC Lang G S Coghlan J B Boyd, N E MacDougall O E Finch, W Scott H G Hobson R Vincent A M Roome T F Craig, T Bell, T L Davies H E Rawlence H H Serpell, A. Campbell, D G Wishart, R L Hutton A G Anderson D R Jones F V Hanratty R W L Wallace A C Rowswell W S Thacker J J H Ferguson J D Hart, W Fell, T C Reeves, F G W Deane, C G Galpin, R Bruce Low, N Dunn, G M Gregoire, H P Gaston, and R Stirling

To be temporary Lieutenants D V O'Malley, K. S Macky, T B A Haggard, A Morrison F E Dowling, J L Gordon, W J P Lillis, S Verdon Roe, J E Finlay, G Dougan, A F Fraser, I W Dickson, E F Hoare, G A Campbell, L Bensted, F C Morgan, A E Hunter, C W Budden, F Kinnear, J F C O'Donohoe, H E T Dawes, A W Brodribb, T H Martin, M J Loughrey, J H Fryer, P A Dykes J Graham, H Whitwell, J Lindsay, W D Hopkins, D McCormack, F H Cooke, C J B Pasley, D F Kennard, and D Campbell (from Second Lieutenant, Indian Army Reserve of Officers)

To be temporary Honorary Lieutenants whilst serving with No 8 British Red Cross (Baltic and Corn Exchange) Hospital C E Drennan, E Aylward, and S Wicks

Temporary Lieutenant R. Marshall to be temporary Honorary Lieutenant

Temporary Lieutenants relinquishing their commissions J Forbes, R McL Wishart, W W Wood, J Maxwell, T H D Storms, L E Belcourt, M R Helliwell, J J Brown, C A H Gee, W G Southey, C J Tisdall, L Valentine, A. M A James, J H Rowe, J 'Laird, G E Beggs, J W Jackson, S R Johnston, J J Thomson, P MacKasey, G L Kennedy, W J MacNab, J Pearson, D K. Parkes, W R Taylor, P P Wright, B E Lang, O Van Luven D E Scott, E J de Beaupre, S A. Overend, C M Keillor H K. Groff, R B Martin, K L MacKinnon, S K McKee, LeB B Wilmot R W McQuay, J S Chisholm, J H Fisher, E Lachopelle, W L Robertson, L J Pellew, W Turner, and B J Nolan (on account of ill health)

Temporary Honorary Lieutenant Harold L Hughes relinquishes his commission on account of ill health

Temporary Honorary Lieutenants to be temporary Lieutenants A. W Adams and W L Thomas

Canadian Army Medical Corps To be temporary Captains T Coleman, W Filmer Cov J G MacNeill, W H McMillan, M G Brown, C L Blight W G Blair, A E Blackett, R A. Dowd, J S Fitzsimmons, E R Graham, S E Holmes, N MacL Harris F D Sinclair, B C Reynolds, L R Shier C C Schlichter, Lieutenant A J Lomas (Canadian Militia), E Gardner, and J H Slayter

INDIAN MEDICAL SERVICE

Lieutenant-Colonel L P More, R A M.C , to be an Assistant Director of Medical Services, vice Colonel E Eckersley, A M S

Colonel W R Edwards, C B , C M G , to be Surgeon General

Lieutenant-Colonels to be Colonels J T Daly, G J H Bell, C I E , H Fooks, and W H B Robinson

TERRITORIAL FORCE

Royal Army Medical Corps

North Midland Field Ambulance Lieutenants to be Captains F C Pridham, J Howard, and D A. Wilson

East Anglian Field Ambulance Lieutenant J Humphrey to be Captain

Home Counties Field Ambulance H England and S K. McKee (late temporary Lieutenant, R A.M C) to be Lieutenants

London General Hospital Lieutenant-Colonel Sir J K. Fowler, K.C V O , is seconded whilst holding a commission as temporary Colonel R A.M C Captain F H. Humphris is restored to the establishment

Western General Hospital Captain K W Monsarrat is seconded whilst holding a commission as temporary Major, R A.M C

North Midland Mounted Brigade Field Ambulance Lieutenant J M Mitchell to be Captain

West Lancashire Field Ambulance Lieutenant A. V Glendenning to be Captain

Welsh Field Ambulance Lieutenants to be Captains W Sankey and R Willan

Southern General Hospital Major R H Lucy relinquishes his commission on account of ill health

Sanitary Service R A Farrar, late temporary Major, R A M C , to be Major (temporary), whose services will be available on mobilisation

London Sanitary Company Lieutenants M S Briggs and H S Tebbitt to be Captains

London Field Ambulance Captains M W K. Bird L Milton C E Petley, W J T Kimber, L B Clarke, L L Preston A F Comyn and A B P Smith, from General Hospitals to be Captains Captain H P Ashe, from a London General Hospital to be Captain

East Anglian Casualty Clearing Station Lieutenant (temporary Captain) F W Lewis to be Captain

London Casualty Clearing Station Captains W H Lloyd and W F B Bensted Smith, from General Hospitals, to be Captains

Eastern Mounted Brigade Field Ambulance Major W Archibald, to be temporary Lieutenant-Colonel whilst in command of a Field Ambulance

concentrated solutions, and also that the loss could be obviated by immediate dilution with large volumes of water The arrangements in the experimental plant are now being altered so that the ammonia and hypochlorite will only mix for a few seconds before dilution with the raw water in the intake pipe

Although various details have yet to be worked out, these notes are published in the hope that others will take up this work and endeavour to work out a process that will give some relief from the present exorbitant price of hypochlorite

Ottawa Civic Laboratories

PARIS

(FROM OUR OWN CORRESPONDENT)

The Influence of Syphilis on the Wounds of War

THE influence of syphilis on the effects of traumatism has long been known, and is now being freely observed in military patients The consolidation of fractures, in particular, is slower in syphilitic subjects, the callus though more profuse is more friable Dr Sourdel a surgeon with the army, has drawn attention to several points in this connexion, mentioning that the influences of syphilis on the wounds of war manifest themselves not at first but in the later stages of treatment A wound involving skin and muscle, for example, will be found slow in cicatrisation, the borders becoming livid and badly vascularised, but the unhealthy conditions will disappear rapidly on the application of a specific dressing like Vigo's plaster In suppurating conditions after operations on the knee joint, after a long period of discharge there will be rapid amelioration, but there will be fistulous tracts, and these will continue to discharge with defined edges as though punched out If a specific history is obtained, drastic treatment like the intravenous injection of cyanide of mercury will generally give good results Syphilitic subjects are liable to secondary hæmorrhage, and minor causes—the irritation of a ligature, a drain or a small foreign body—produce in them serious results even hæmorrhages to the point of anæmia If these patients are submitted to some such specific treatment as hypodermic injection of biniodide of mercury, the tendency to hæmorrhage will disappear and cicatrisation will proceed normally Dr Sourdel recommends the specific treatment for syphilis of every wounded syphilitic subject especially where any abnormality occurs in the course of the healing of the injury

Public Health and the Cinema

Professor Raphael Blanchard has represented to the Academy of Medicine the advantage of using the cinema to spread valuable hygienic notions among the public in a striking manner The idea is a sound one, and already the sanitary services have organised cinematograph displays comprising many valuable scientific records It is altogether desirable that the spectators at these shows while being interested in the display, should learn the elementary facts concerning the diffusion of disease

Transplantation of Cartilage in Reparative Surgery

Dr Morestin brought before the Academy of Medicine a subject of great practical interest at the present moment—viz. the rôle which the transplantation of cartilage may be destined to play in the vast domain of reparative surgery Cartilaginous props have already been employed for the flaps in plastic nasal surgery But Dr Morestin's new method consists in a wide extension of this principle in the repair of cranium and of the bones of the face Of all the tissues none can be grafted more easily than cartilage which is not merely tolerated by the tissues into which it is transplanted, but lives and flourishes there It has no tendency to be absorbed and only undergoes trifling modification The graft is therefore a stable one and can be utilised with confidence Cartilage commends itself also as a graft on account of the extreme ease with which it can be cut into any form by means of a simple bistoury In practice it is always the costal cartilages which are employed particularly the sixth to eighth the removal of which has no unpleasant consequences Fragments of cartilage from another subject may also be employed With such grafts we are in possession of an easy and certain procedure for making good losses of cranial substance even if these are large and irregular The method is specially suitable for replacing portions of frontal bone or of the orbital margins Even the malar arch can be thus restored, or the greater part of the maxillary bone replaced The hope is justified that in cases where the orbit has been extensively damaged conditions suitable for a proper prosthesis may be attained by means of cartilaginous fragments In repairing limbs, especially the hand and foot, the procedure should have some useful application

The Sign of the Crossed Leg in Raised Arterial Tension

A simple clinical observation may be of service in the diagnosis of increased arterial tension The sign consists in the measurement by the eye of the shock produced by arterial momentum in the leg which is crossed over the other, a shock due to the partial obstruction produced at the level of the popliteal vessels The patient is asked simply to cross one leg over the other in the ordinary way Normally the upper leg does not apparently show any spontaneous movement, or it requires careful attention to note the oscillation synchronous with the arterial pulsation But this is not the case in observing the subject of plus tension Dr Molle has noted that oscillation due to the arterial shock begins to be apparent with a systolic pressure of 160 to 170 mm and is marked with a pressure over 170 mm The observer should carefully watch the limb from the side, and he will be surprised at the ease with which the movement can be registered The sign may be made still more striking by covering the limb with a piece of paper such as a folded journal, when the amplitude of movement may become remarkable The observation may be compared with one made by Delpeuch in 1900 He noted rhythmic shocks of the head when placed in certain positions synchronous with arterial pulsation in cases of aortic lesion especially aortic insufficiency

July 4th

EPSOM COLLEGE

THE annual general meeting of the governors of Epsom College was held at the office in Soho-square on June 30 b when the Treasurer Sir Henry [illegible] occupied the chair supported by many representati[illegible] [illegible]nors

In moving the adoption of th[illegible] Pl, Sir HENRY MONRO referred to the loss which the [illegible] had sustained in the death of two of their members, [illegible]omas Boor Crosby and Mr Stanley Boyd. In referen[illegible] the reduced receipts from subscriptions as a result of the war, he mentioned that one member of the council had recently procured in less than two months a sum of over 40 guineas in annual subscriptions and he expressed the hope that other governors would endeavour to bring the work of the foundation before their friends He expressed the appreciation of the council at the services rendered to the College by the *British Medical Journal* and THE LANCET adding that the British Medical Association had rendered special help in collecting contributions and that the Medical Insurance Agency had recently sent a donation of £100 which brought the total of the donations of the Agency to over £500 within a very short space of time He expressed the regret of the council at the death of the Rev W A Thomas a master of the College for 32 years who throughout that period had won the affections of many generations of boys as well as of his colleagues on the staff by all of whom he was deeply respected

The report showed that the foundation and the trust funds render assistance to 100 pensioners medical men or the widows and aged daughters of medical men in reduced circumstances and that 50 sons of medical men are being boarded educated and clothed at Epsom College free of charge The report further stated that although the numbers in the school were at first slightly affected by the war the College is now full the total number of boys being 305 as against 273 at the corresponding period last year The report also included a good list of scholars in honours gained and mentioned that over 520 O l Epsomians are serving with the forces, of whom 430 have joined since the outbreak of war while in the roll of honour are included 21 who have been killed in action 4 who have died in hospital who have been killed in action 4 who have died in hospital 40 wounded—two of them twice 4 missing and 1 a prisoner Twenty seven Old Epsomians have it appear been mentioned in despatches—4 of them were 3 [illegible]

Kensington, St Marylebone Hampstead, Holborn, and the City of London, and the highest rates in St Pancras, Finsbury, Shoreditch, Bethnal Green, Poplar, and Deptford The prevalence of scarlet fever showed a considerable decline from that recorded in the preceding month, this disease was proportionally most prevalent in the month under notice in St Pancras Finsbury, Shoreditch, Bermondsey, and Deptford. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals, which had been 1955, 1755 and 1608 at the end of the three preceding months, had further fallen to 1325 at the end of May, the weekly admissions averaged 156, against 210, 208, and 190 in the three preceding months Diphtheria was rather more prevalent than it had been in the preceding month, the greatest proportional prevalence of this disease was recorded in Finsbury, Shoreditch, Stepney and Poplar The Metropolitan Asylums Hospitals contained 1242 diphtheria patients at the end of May, against 1538, 1417, and 1331 at the end of the three preceding months, the weekly admissions averaged 152 against 160 and 149 in the two preceding months The prevalence of enteric fever showed but little variation from that recorded in other recent months of the 42 cases notified during May 6 belonged to the City of Westminster 5 to Kensington, 4 to Islington 4 to Wandsworth, 3 to St Marylebone, and 3 to Stepney There were 30 enteric fever patients under treatment in the Metropolitan Asylums Hospitals at the end of May, against 50, 46 and 39 at the end of the three preceding months, the weekly admissions, which had averaged 7 in each of the three preceding months, declined to 5 in May Erysipelas was proportionally most prevalent in St Pancras Stoke Newington Holborn, Shoreditch Poplar, Southwark, and Bermondsey The 36 cases of puerperal fever notified during the month included 5 in Fulham 4 in Islington and 3 each in Bethnal Green, Southwark, Lambeth, Wandsworth, and Woolwich The 52 cases of cerebro-spinal meningitis included 6 in Islington, 5 in St Pancras 5 in Wandsworth, 4 each in Stepney Poplar and Lambeth, and 3 each in Shoreditch, Bethnal Green, and Battersea The 5 cases of poliomyelitis belonged respectively to Islington, Hackney, Bethnal Green, Stepney, and Wandsworth

The mortality statistics in the table relate to the deaths of persons actually belonging to the several metropolitan boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided During the five weeks ending June 3rd the deaths of 5338 London residents were registered, equal to an annual rate of 12·9 per 1000, in the three preceding months the rates had been 14 5 18 1, and 17 2 per 1000 The death rates for the month ranged from 8 5 in Stoke Newington, 9 1 in Hampstead, 9 8 in the City of Westminster and in Wandsworth 10·3 in Lewisham, and 10·7 in the City of London to 15 4 in Chelsea, 15 7 in Deptford 16 3 in Bermondsey 16·5 in Shoreditch and in Poplar, and 18·6 in Finsbury The 5338 deaths from all causes included 405 which were referred to the principal infectious diseases of these, 115 resulted from measles, 16 from scarlet fever, 34 from diphtheria, 151 from whooping-cough, 7 from enteric fever, and 82 from diarrhœa and enteritis among children under 2 years of age No death from any of these infectious diseases was recorded in the City of London, among the metropolitan boroughs they caused the lowest death rates in the City of Westminster, Hampstead, Stoke Newington, Bermondsey, and Camberwell and the highest death rates in Chelsea, Islington, Finsbury, Shoreditch, Poplar Deptford, and Greenwich The 115 deaths from measles were 82 below the corrected average number in the corresponding period of the five preceding years, this disease was proportionally most fatal in May in Islington Finsbury, Shoreditch, Poplar, Greenwich and Deptford. The 16 cases of scarlet fever were 6 below the corrected average number, and included 2 each in St Pancras Shoreditch and Southwark. The 34 deaths from diphtheria showed a decline of 11 from the corrected average, and included 7 in Wandsworth, 3 each in Hammersmith, Chelsea, and Finsbury, and 2 each in St Pancras Stepney, Poplar, and Southwark. The 151 deaths from whooping-cough were 15 in excess of the corrected average, this disease was proportionally most fatal in Fulham,

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING MAY, 1916

(Specially compiled for THE LANCET *)*

Cities and Boroughs	Estimated civil population, 1916	Notified Cases of Infectious Disease. Small pox	Scarlet fever	Diphtheria*	Typhus fever	Enteric fever	Other continued fevers	Puerperal fever	Erysipelas	Cerebro-spinal meningitis	Poliomyelitis	Total	Annual rate per 1000 persons living	Deaths from Principal Infectious Diseases. Small pox	Measles	Scarlet fever	Diphtheria*	Whooping cough	Enteric fever	Diarrhœa and enteritis (under 2 years)	Total	Annual rate per 1000 persons living	Deaths from all causes	Death rate per 1000 living
LONDON	4,810 030	1	813	768	—	42	2	36	224	52	5	1943	4·7	—	115	16	34	151	7	82	405	1·0	5338	12·9
West Districts																								
Paddington	131,337	—	20	23	—	2	—	—	5	1	—	56	4·4	—	1	—	1	5	—	5	12	1·0	156	13·2
Kensington	156,796	—	15	18	—	5	—	2	2	2	—	44	2·9	—	3	—	—	3	—	3	9	0·6	214	14·3
Hammersmith	118,559	—	21	23	—	1	—	1	4	—	—	50	4·4	—	3	—	3	2	—	3	11	1·0	132	11·6
Fulham	151,161	1	20	21	—	—	—	5	4	2	—	53	3·7	—	3	—	1	9	—	3	16	1·1	166	11·5
Chelsea	88,421	—	15	9	—	—	—	—	1	—	—	25	4·5	—	2	—	3	1	—	2	8	1·4	86	15·4
City of Westminster	133,184	—	9	28	—	6	—	2	4	—	—	49	3·8	—	—	—	1	2	—	1	4	0·3	127	9·8
North Districts																								
St Marylebone	100,260	—	10	8	—	3	—	—	6	—	—	27	2·8	—	1	—	—	7	1	—	9	0·9	157	16·3
Hampstead	81,760	—	8	9	—	—	—	—	5	—	—	22	2·8	—	—	—	—	1	—	—	1	0·1	71	9·1
St Pancras	200,322	—	68	45	—	1	1	2	18	5	—	141	7·3	—	6	2	2	8	1	6	25	1·3	255	13·3
Islington	318,242	—	60	54	—	4	—	4	15	6	1	145	4·8	—	20	1	—	13	1	11	45	1·5	456	15·0
Stoke Newington	50,827	—	8	2	—	—	—	—	4	1	—	15	3·1	—	—	1	—	—	—	—	1	0·2	41	8·5
Hackney	217,803	—	29	30	—	1	—	—	11	2	1	74	3·5	—	11	1	1	9	1	3	26	1·2	249	11·9
Central Districts																								
Holborn	49,406	—	1	5	—	—	—	—	3	—	—	9	2·3	—	2	—	1	1	—	—	4	1·0	58	15·0
Finsbury	76,915	—	23	28	—	—	—	—	2	—	—	51	6·9	—	6	—	3	3	—	2	14	1·9	137	18·6
City of London	19,451	—	1	—	—	—	—	—	2	1	—	4	2·1	—	—	—	—	—	—	—	—	—	20	10·7
East Districts																								
Shoreditch	103,627	—	35	37	—	1	—	—	9	3	—	85	6·6	—	7	2	1	9	—	2	21	2·1	169	16·5
Bethnal Green	122,207	—	31	31	—	1	—	3	6	3	1	76	6·6	—	—	1	—	11	—	—	12	1·0	136	11·7
Stepney	285,731	—	54	77	—	3	—	2	13	4	1	154	6·0	—	7	1	2	15	1	8	34	1·3	344	13·5
Poplar	156,217	—	37	44	—	1	—	2	15	4	—	104	6·9	—	9	—	2	7	1	8	27	1·8	247	16·5
South Districts																								
Southwark	179,424	—	26	30	—	1	—	3	19	2	—	81	4·7	—	6	2	2	6	—	1	17	1·0	252	14·7
Bermondsey	117,168	—	33	17	—	1	—	—	11	1	—	63	6·1	—	—	—	1	2	—	2	5	0·5	183	16·3
Lambeth	297,188	—	51	33	—	2	1	3	7	4	—	101	3·9	—	6	—	—	9	1	6	22	0·8	320	12·5
Battersea	161,045	—	27	22	—	—	—	—	8	3	—	60	3·9	—	1	1	1	3	—	2	8	0·5	192	11·8
Wandsworth	312,279	—	56	45	—	4	—	3	13	5	1	127	4·2	—	1	1	7	5	—	—	15	0·6	283	9·5
Camberwell	288,325	—	43	41	—	1	—	—	8	1	—	94	3·9	—	3	—	—	5	—	2	10	0·4	222	11·6
Deptford	110,289	—	34	23	—	1	—	—	8	1	—	67	6·3	—	3	1	—	2	—	—	15	1·4	166	15·7
Greenwich	95,335	—	21	19	—	2	—	—	6	—	—	48	5·2	—	3	1	—	3	—	3	15	1·6	133	14·5
Lewisham	164,457	—	22	21	—	—	—	1	7	1	—	52	3·3	—	1	—	1	5	—	1	8	0·5	183	10·3
Woolwich	139,576	—	24	19	—	1	—	3	6	—	—	53	4·3	—	—	1	1	5	—	—	6	0·5	137	11·0
Port of London	—	—	—	2	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

Highland Mounted Brigade Field Ambulance G W Deeping, late temporary Lieutenant, R A M C, to be Lieutenant

South Midland Mounted Brigade Field Ambulance Lieutenant S P Johnson to be Captain

South Western Mounted Brigade Field Ambulance Lieutenant J W A Cooper to be Captain

East Lancashire Field Ambulance Captain M Moritz, from Western General Hospital, to be Captain

South Midland Casualty Clearing Station Lieutenant G H Kirby to be Captain

Attached to Units other than Medical Units —Surgeon Captain W T Rowe, from South Nottinghamshire Hussars Yeomanry, to be Captain Captains W K Churchouse, D N Hardcastle, J D L Currie, and H A Philpot, from General Hospitals, to be Captains Captain J M Kirkness is restored to the establishment Lieutenant B G Ewing to be Captain

Supernumerary for service with the Officers Training Corps — G F Blacker to be Captain for service with the Medical Unit of London University Contingent, Senior Division Officers Training Corps

Unattached List for the Territorial Force —Royal College of Surgeons in Ireland Contingent, Senior Division, Officers Training Corps Second Lieutenant A Miller to be temporary Lieutenant whilst commanding the Contingent.

VITAL STATISTICS

HEALTH OF ENGLISH TOWNS

IN the 96 English and Welsh towns with populations exceeding 50,000 persons at the last Census, 7931 births and 3852 deaths were registered during the week ended Saturday, July 1st The annual rate of mortality in these towns which had been 12 0 12 3, and 12 6 per 1000 in the three preceding weeks, fell in the week under notice to 11 6 per 1000 of their aggregate civil population, estimated at 17,312,295 persons for the year 1915 During the 13 weeks of last quarter the mean annual death rate in these towns averaged 14 3, against a corresponding rate of 13 8 per 1000 in London Among the several towns the death rate last week ranged from 5 2 in York, 5 5 in Ealing, 6 5 in Wimbledon, 6 8 in Willesden, and 6 9 in Edmonton, to 17 4 in Cambridge, 18 6 in Preston, 18 9 in Birkenhead, 20 5 in Dudley and 21 7 in Great Yarmouth

The 3852 deaths from all causes were 344 fewer than the number in the previous week, and included 225 which were referred to the principal epidemic diseases, against numbers declining from 335 to 244 in the four preceding weeks Of these 225 deaths, 68 resulted from measles, 55 from whooping-cough, 59 from infantile diarrhœal diseases, 29 from diphtheria 13 from scarlet fever and 10 from enteric fever, but not one from small pox The annual death rate from these diseases was equal to 0 7 per 1000, and coincided with that recorded in each of the two preceding weeks The deaths attributed to measles, which had been 70 65, and 67 in the three preceding weeks, numbered 68 last week, and included 22 in London, 9 each in Liverpool and Sheffield, 4 in Newcastle on Tyne, and 3 each in Birmingham and Manchester The deaths referred to whooping-cough, which had been 102, 76, and 77 in the three preceding weeks fell to 55, of which 11 were registered in London, 6 in Manchester, and 3 in West Ham and Stoke-on Trent The fatal cases of diarrhœa and enteritis (among infants under 2 years), which had been 63 52, and 45 in the three preceding weeks rose to 50 13 deaths were recorded in London 6 in Birmingham, and 3 in Manchester The deaths attributed to diphtheria, which had been 52, 34, and 27 in the three preceding weeks slightly rose to 29 and included 6 in London and 2 each in Great Yarmouth, Coventry Wallasey, and Aberdare The deaths referred to scarlet fever, which had been 9 9, and 15 in the three preceding weeks fell to 13 of which 3 occurred in London and in Manchester and 2 in St Helens The fatal cases of enteric fever, which had been 4, 11, and 13 in the three preceding weeks fell to 10 and included 3 in London and 2 in Hull

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 1313 1302 and 1303 at the end of the three preceding weeks declined to 1273 on Saturday last 162 new cases were admitted during the week, against 166 149, and 171 in the three preceding weeks These hospitals also contained on Saturday last 1313 cases of diphtheria, 191 of measles 154 of whooping-cough and 47 of enteric fever, but not one of small pox The 994 deaths from all causes in London were 107 below the number in the previous week and corresponded to an annual death rate of 10 9 per 1000 The deaths referred to diseases of the respiratory system, which had increased from 117 to 157 in the four preceding weeks, fell to 107 in the week under notice

Of the 3852 deaths from all causes in the 96 towns 160 resulted from violence 305 were the subject of coroner's inquests, and 1192 occurred in public institutions The causes of 24, or 0 6 per cent, of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest All the causes of death were duly certified in Sheffield, Leeds, Bristol, West Ham Bradford, and in 75 other smaller towns Of the 24 uncertified causes, 5 were registered in Birmingham, 4 in Liverpool and 2 in Preston

HEALTH OF SCOTCH TOWNS

In the 16 largest Scotch towns with an aggregate population estimated at 2,372,000 persons at the middle of this year, 1119 births and 574 deaths were registered during the week ended Saturday, July 1st The annual rate of mortality in these towns, which had been 12 9, 12 2, and 13 4 per 1000 in the three preceding weeks, fell to 12 6 per 1000 in the week under notice During the 13 weeks of last quarter the mean annual death rate in these towns averaged 15 3, against 14 3 per 1000 in the large English towns Among the several towns the death rate last week ranged from 6 4 in Kirkcaldy, 9 2 in Falkirk, and 10 0 in Perth, to 16 8 in Greenock 18 4 in Leith, and 20 2 in Ayr

The 574 deaths from all causes were 34 fewer than the number in the previous week and included 54 which were referred to the principal epidemic diseases against 39 and 52 in the two preceding weeks Of these 54 deaths 28 resulted from measles, 13 from infantile diarrhœal diseases, 5 each from whooping-cough and diphtheria 2 from enteric fever, and 1 from scarlet fever but not one from small pox The annual death rate from these diseases was equal to 1 2, against 0 7 per 1000 in the large English towns The deaths attributed to measles which had been 13, 17 and 19 in the three preceding weeks, rose to 28 and included 18 in Glasgow, 4 in Leith and 2 each in Dundee and Greenock The deaths of infants (under 2 years) from diarrhœa and enteritis which had been 12, 4, and 11 in the three preceding weeks rose to 13, of which 4 occurred in Glasgow 3 in Dundee, and 2 in Edinburgh The fatal cases of whooping-cough which had been 9, 7, and 4 in the three preceding weeks numbered 5 and were all recorded in Glasgow The 5 deaths from diphtheria were slightly below the average in the earlier weeks of the quarter, and comprised 2 each in Glasgow and Edinburgh and 1 in Hamilton The fatal cases of enteric fever were recorded in Glasgow and Falkirk, and that of scarlet fever in Aberdeen

The deaths referred to diseases of the respiratory system which had been 92, 75, and 75 in the three preceding weeks fell to 57 in the week under notice and were 42 below the number registered in the corresponding week of last year The deaths from violence numbered 22, against 14 and 23 in the two preceding weeks

HEALTH OF IRISH TOWNS

In the registration area of Dublin 169 births and 135 deaths were registered during the week ended Saturday July 1st The annual rate of mortality which had been 17 7 17 8 and 15 9 per 1000 in the three preceding weeks rose to 17 3 in the week under review, against 10 9 and 12 4 per 1000 in London and Glasgow respectively

Of the 135 deaths at all ages 21 related to infants under 1 year and 27 to persons aged 65 years and upwards The deaths referred to the principal epidemic diseases numbered 4 and comprised 1 each from measles, scarlet fever diphtheria, and infantile diarrhœa

The causes of 4 deaths were uncertified and 1 other was the subject of a coroner's inquest while 76 or 55 per cent of the total deaths occurred in public institutions

During the same period 203 births and 101 deaths were registered in the city of Belfast The deaths corresponded to an annual rate of 13 5 or 0 5 per 1000 less than in the previous week and included 15 of infants under 1 year of age and 17 of persons aged 65 years and upwards The deaths from the principal epidemic diseases numbered 2 against 11 in the previous week and both resulted from measles All the causes of death were duly certified and included 5 which had been the subject of coroners inquests while 27 of the total deaths occurred in public institutions

VITAL STATISTICS OF LONDON DURING MAY 1916

In the accompanying table will be found summary and complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs With regard to the notified cases of infectious disease it appears that the number of persons reported to be suffering from one or other of the 10 diseases specified in the table was equal to an annual rate of 7 per 1000 of the estimated population as compared with 4 310 050 persons in the three preceding months the rates had been 6 0 5 6 and 5 3 per 1000 respectively The lowest rates during the month were recorded in

THE CAUSATION AND CURE OF CERTAIN LUNACIES

To the Editor of THE LANCET

SIR,—It may not be too late to refer to a communication with the above title in your issue of June 24th Captain Rupert Farrant, the author appears to have gone to foreign parts on service and to have left us to support with such fortitude and philosophy as we may the concussion effects of the following (amongst other) high explosives until such time as he returns as we trust he may ere long and in fe le to deal with the bemused claimants to his attention

Mental cases and others have been examined for the presence of toxemias inducing the alteration in the glands (i.e endocrinal glands) ..... It is deduced that many cases of lunacy may be classified according to the toxemia present and the change that it has induced in the ductless glands

I dare say many of us will be prepared to face yet another classification of insanity if at last we are presented with one based upon pathology Until however Captain Farrant demonstrates a toxin or toxins in a case of insanity, and proves experimentally that such has caused a change in the ductless glands no value will be attached to this deduction.

In primary and secondary amentia atrophy of the pineal, pituitary and thyroid were found in three main groups of cases

I do not know what is meant by "primary and secondary amentia," nor do I understand how three groups of cases are spread over two morbid states, but in any case an atrophy of these glands is not by any means found only in association with a particular variety or varieties of mental deficiency or disease. I deny that any significance whatever can be attached to this condition, upon the basis of any work done up to the close of 1914, and a considerable amount of such work had by then been recorded

The pituitary gland was found sometimes to have given rise (*sic*) to symptoms of hyperpituitarism, to spituitarism in idiocy dementia praecox, and other forms of insanity

I commend this sentence to Dr Mercier's notice If by it is meant that disease of a gland sometimes gives rise to specific symptoms associated with loss, impairment, or derangement of the function of that gland, that has no bearing upon the pathogenesis of any form of insanity

Streptococci were found up to 100 per cent. and the total exclusion of bacillus coli in some cases of mania.

The first portion of this statement is meaningless. Is it intended to convey that the number of streptococci per gramme of fæces is increased and, if so by how much? Such work as Barton White and I were able to do in this direction[1] showed that there was no increase in these organisms in acute mania and melancholia. The second part of the statement is startling Our experience showed that B coli was increased in acute mania, and even Pardo (whose work I refer to in the lectures cited) who claims to have demonstrated that the putrefactive anaerobes are increased in this disorder at the expense of B coli and B aerogenes does not claim to have observed a complete disappearance of B coli.

In adults certain toxemias react on these glands especially the thyroid and pituitary and induce stimulation, hypertrophy and finally atrophy ..... The alteration in the amount of secretion induces an altered mental state, and this, combined with the effect of the toxemia, renders the patient insane, or liable to insanity from slight mental stress

As to this we require evidence of the particular toxin concerned—evidence that this acts on certain glands and, so acting induces the conditions mentioned, evidence that alteration in amount of secretion induces an altered mental state, evidence that toxemia renders or helps to render a patient insane

The whole of this utterance is *ex cathedra* valueless and unscientific, in my opinion Of a piece with it is the further assertion that—

Alteration in the sexual glands ..... leads to altered mentality up to insanity

The lines on which beneficial treatment may be carried out, based on the above pathology become obvious.

Unfortunately the "pathology" is by no means obvious

Toxemias, if present, should be removed.

By all means let that be done when their presence has been demonstrated.

[1] Croonian Lectures. THE LANCET Dec 5th (p 1227) 12th (p. 1333) 19th (p 1387) and 26th (p 1451) 1914.

The glands should be allowed to involute if they are hypertrophied.

Certainly by kind permission of the impresario I mean the doctor, for he dread man can of course, withhold consent, prevent involution, and thus damn the proceedings

I am Sir, yours faithfully,

Cardiff July 3rd 1916 EDWIN GOODALL.

THE NEEDS OF THE ROYAL MEDICAL BENEVOLENT FUND

To the Editor of THE LANCET

SIR,—The Royal Medical Benevolent Fund, the great benevolent society of the medical profession is sorely in want of money now Though in ordinary times the medical profession supports its own poor, in these war times this is no longer possible. At the May meeting the committee had a balance of only £17 in hand and at the June meeting was faced with a deficit of £16 The demands were heavy and had to be met, and this could only be done by withdrawing £500 from the bank. As the direct outcome of the war not only are the ordinary cases of poverty greatly increased in number, but an entirely new class of case has arisen urgently requiring relief in which, without actual poverty there is great temporary distress—distress however which it is hoped will relieve itself soon after the war is over and the doctors serving return to their civil duties

At the outbreak of war the medical profession responded freely to the nation's call. The Territorial medical officers were at once called out, and other medical men volunteered Both alike had to leave their practice at very short notice, and often without being able to make adequate provision for its continuance and maintenance during their absence. Their pay went but little way to supply the loss which their absence entailed for the working expenses of the practice could not be materially reduced. The result was that many families found themselves in very straitened circumstances Rent rates, and insurance brook no delay, but, worst of all school-bills could not be paid, and if help had not been quickly forthcoming the children would have suffered for the patriotism of their father

The following are typical of the cases with which our Fund has had to deal —

A young doctor who had only been in practice a few years volunteered for service, and was killed in action a few days later He left a widow aged 35, with two young boys, aged 3½ and 1 year entirely without means The Fund voted £25 for her immediate necessities, and put her into communication with the Officers' Families Association, which gave further help.

A practitioner aged 38, earning £700 to £800 volunteered for service, leaving his practice in the hands of a neighbour who was not a success There were two young children, and another baby was born shortly after the husband left. The wife contracted pneumonia and nearly died. A resident patient had to leave the house. Rent and other expenses led to a debt of about £60 This the doctor could not meet, and he hurried back from the trenches to save his home from being sold up. The Fund voted £25, the Guild gave £15 the Officers Families Association £25 and the Professional Classes War Relief Council further help with the result that he returned to the front with his immediate anxieties relieved.

A captain in the Territorials was called out and had to leave his practice in the hands of a locum who proved a failure. There were seven children, aged 2 to 14 Financial difficulties arose and payment to the school fees became impossible. Between the Fund and Guild, and Officers Families Association, the necessary fees were raised, and clothing which was greatly required, provided.

These cases show well the way in which the Fund works, not only by giving relief itself in money and kind, but also by obtaining through coöperation with other benevolent societies more substantial assistance than it could afford alone.

But there is another class in which the distress is perhaps even greater and adequate relief more difficult It is that of men who left home and a good practice in vigorous health and who have come back, crippled by wounds or with health impaired to a practice severely damaged by their absence and without the strength or energy to regain the practice and position which they sacrificed. Our Fund has set apart a special sum to meet emergency claims of this kind yet the demands are so great that it will soon be exhausted. We cannot now rely on the profession alone to supplement it largely for the medical profession like all other professions is hit very hard by the war and has no longer its old resources to draw upon. What is required is an emergency fund large enough to deal adequately with these emergency cases arising directly out of the war and for this we are

St Marylebone, Shoreditch, Bethnal Green, and Stepney The 7 fatal cases of enteric fever were 4 below the corrected average, and belonged respectively to St Marylebone, St Pancras, Islington, Hackney, Stepney, Poplar, and Lambeth The 82 deaths from diarrhœa and enteritis among children under 2 years of age were 8 below the corrected average, the greatest proportional mortality from this cause in May was recorded in Paddington, Chelsea, Poplar, Deptford, and Greenwich In conclusion it may be stated that the aggregate mortality in London during May from the principal infectious diseases was 21 0 per cent below the average

Obituary.

HENRY BENJAMIN HINTON, M R C S

A CENTENARIAN DOCTOR

Surgeon Major Henry Benjamin Hinton, who has recently died at Adelaide, South Australia, was in his 104th year and the senior Member of the Royal College of Surgeons of England He was born two years before the Battle of Waterloo at Southsea (Portsmouth) on March 7th, 1813 One of his immediate relatives was Dr James Hinton, who had secured fame as an ear surgeon—a fact which it is thought had some influence on his career, as he selected the medical profession as the field of his life's work From 1832–34 he was a student at the London Hospital, and afterwards went to the Westminster Hospital On May 25th, 1835, he became a Member of the Royal College of Surgeons of England He was appointed surgeon on the East Indiaman *Broadholme* in 1835, and made three voyages to Calcutta His first army appointment was as an assistant surgeon in the Bengal army in 1839 He served in the Arracan district of Burma for some three years, and then was transferred to Gwalior and assisted in tending the wounded at the battle of Maharajpore. In 1846 he was present at Aliwal in the first Sikh War and at Sobraon, and received the medal and clasp He was at Delhi in the same year, and also participated in the second Sikh War of 1848–49 and in the Mutiny of 1857 In 1858–60 he volunteered for work in China and served with the 70th Native Infantry in Canton, and obtained the campaign medal and received a similar token for his work in the Bhootan Campaign of 1864–65 In 1869, acting on medical advice, Mr Hinton retired from the service and went to Australia He lived in Tasmania and also in Melbourne and Geelong, and finally settled in South Australia Mr Hinton was congratulated by the Council of the Royal College of Surgeons of England on attaining his 100th birthday in 1912 but in the same year had the misfortune to sustain a painful accident and a fractured thigh bone kept him in hospital for some time Despite his accident he displayed extraordinary vitality until a short time before his death He enjoyed excellent health for his years and retained his mental faculties in a wonderful degree In his early life he was obliged to wear glasses but these he abandoned in middle age Towards the close of his long life he could read books and write his letters without any artificial aid to his sight He was a non smoker, practically a total abstainer, and a small eater Mrs L H Sholl of Adelaide, and Mr Reginald Hinton of Tasmania are the two surviving children

DONATIONS AND BEQUESTS —The Directors of the Powell Duffryn Steam Coal Company have given £1000 towards the proposed extensions to King Edward VII Hospital at Cardiff —The Lord Mayor of Leeds has received a contribution of £3500 from the estate of the late Mrs Sarah L S Geldart towards the extension of the Leeds General Infirmary

QUEEN'S UNIVERSITY BELFAST —At the final degree examinations in medicine out of 35 candidates 27 passed The success of the women candidates was remarkable Miss Grace English was first of all the candidates gaining the £20 prize and first in obstetrics for which she was awarded the £30 scholarship Miss M Force was second of all the candidates and won the £30 exhibition for being first in medicine while Mr Joseph P McGinley was third candidate and was first in surgery and obtained the £30 prize All three candidates were awarded first-class honours

Correspondence.

"Audi alteram partem"

THE REGISTERED PRACTITIONER AND THE UNCERTIFIED MATERNITY NURSE

To the Editor of THE LANCET

SIR —I am directed by the President of the General Medical Council and the chairman of the Central Midwives Board to send you for publication the accompanying copy of a correspondence which has recently taken place between a registered medical practitioner in England and the chairman of the Central Midwives Board with regard to the conditions under which a medical practitioner may properly coöperate with an uncertified woman, not being a nurse employed by him, in attending a maternity case

I am, Sir, yours faithfully,

G W DUNCAN,
Secretary Central Midwives Board

Westminster S W *July 3rd 1916*

(COPY)

DEAR SIR,—Do you mind telling me if, in your opinion the following case is that of 'covering an uncertified midwife"? Mrs —, who was in practice before the Act and who has since been crossed off the Roll, or to be strictly accurate, has resigned, still acts as a nurse, and tells everybody who comes to her that she cannot act without a doctor, and sends all the people to me Am I justified in going to them? The instruction I give is that they are to send for me directly they want me, and in the event of the child being born before I arrive that the placenta is always to be kept for me to see

As I have been in practice over 35 years, and done a good deal of midwifery, I am naturally anxious not to break the law, and sooner than do that would rather tell Mrs — that I cannot go with her, either as a nurse or in any other capacity I am sorry to trouble you, but believe you are the chairman of the Central Midwives Board

Yours truly,

June 8th 1916

DEAR SIR,—In reply to your letter of June 8th, forwarded to me, in such a case as that which you mention—the woman having already been struck off the Midwives Roll or having resigned—

You must take care that it is clearly understood that any patients whom you attend with Mrs — are your patients and not hers, though she may have sent them

In any dispute on this point the C M B always goes on this principle, that the case belongs to the person who has undertaken to attend the confinement whenever it occurs (day or night) even if normal A monthly nurse summons the doctor so that he may conduct the delivery

In many of the disputed cases it has been plain to the Board that this arrangement has not been made but that the midwife and doctor have agreed that the doctor should not be called at night except in case of some abnormality or that he should not be called to deliver at any time except in case of some abnormality

In these cases the Board holds that the case belongs to the woman, and that the doctor is covering her

In your case I should write your instructions to the midwife and should keep a copy in case of any dispute

There is nothing to prevent Mrs — from acting as a monthly nurse under your orders You are responsible for the cases and for Mrs — nursing of them

I am glad to help you and only wish that more practitioners would adopt the course which you have adopted

Believe me, yours very faithfully

F H CHAMNEYS

Littlemead Nutley Uckfield *June 12th 1916*

DEAR SIR —I am more than grateful to you for your letter and advice I have written to Mrs — and enclose you a copy

I wish to carry out the Act both in the spirit as well as the letter and am naturally anxious not to run any risk myself

With kind regards Yours truly

June 14th 1916

COPY

To Mrs — —I have [illegible] with you 1 [illegible] patient 3 [illegible] exception to [illegible] direct [illegible] these instructions I can [illegible]

June 14th 1916

THE CAUSATION AND CURE OF CERTAIN LUNACIES

To the Editor of THE LANCET

SIR,—It may not be too late to refer to a communication with the above title in your issue of June 24th Captain Rupert Farrant, the author, appears to have gone to foreign parts on service and to have left us to support with such fortitude and philosophy as we may, the concussion effects of the following (amongst other) high explosives until such time as he returns, as we trust he may ere long, and in fettle to deal with the bemused claimants to his attention

Mental cases and others have been examined for the presence of toxæmias inducing the alteration in the glands (i.e endocrinal glands) .. It is deduced that many cases of lunacy may be classified according to the toxæmia present and the change that it has induced in the ductless glands

I dare say many of us will be prepared to face yet another classification of insanity if at last we are presented with one based upon pathology Until, however Captain Farrant demonstrates a toxin, or toxins, in a case of insanity, and proves experimentally that such has caused a change in the ductless glands no value will be attached to this deduction

In primary and secondary amentia atrophy of the pineal pituitary and thyroid were found in three main groups of cases

I do not know what is meant by 'primary and secondary amentia' nor do I understand how three groups of cases are spread over two morbid states, but in any case, an atrophy of these glands is not by any means found only in association with a particular variety or varieties of mental deficiency or disease I deny that any significance whatever can be attached to this condition, upon the basis of any work done up to the close of 1914, and a considerable amount of such work had by then been recorded

The pituitary gland was found sometimes to have given rise (*sic*) to symptoms of hyperpituitarism, to apituitarism in idiocy dementia præcox, and other forms of insanity

I commend this sentence to Dr Mercier's notice If by it is meant that disease of a gland sometimes gives rise to specific symptoms associated with loss, impairment or derangement of the function of that gland, that has no bearing upon the pathogenesis of any form of insanity

Streptococci were found up to 100 per cent, and the total exclusion of bacillus coli in some cases of mania

The first portion of this statement is meaningless Is it intended to convey that the number of streptococci per gramme of fæces is increased and, if so, by how much? Such work as Barton White and I were able to do in this direction[1] showed that there was no increase in these organisms in acute mania and melancholia The second part of the statement is startling Our experience showed that B coli was increased in acute mania, and even Pardo (whose work I refer to in the lectures cited) who claims to have demonstrated that the putrefactive anaerobes are increased in this disorder at the expense of B coli and B aerogenes, does not claim to have observed a complete disappearance of B coli.

In adults certain toxæmias react on these glands especially the thyroid and pituitary and induce stimulation hypertrophy and finally atrophy .... The alteration in the amount of secretion induces an altered mental state and this combined with the effect of the toxæmia, renders the patient insane, or liable to insanity from slight mental stress

As to this we require evidence of the particular toxin concerned—evidence that this acts on certain glands, and, so acting induces the conditions mentioned, evidence that alteration in amount of secretion induces an altered mental state, evidence that toxemia renders, or helps to render a patient insane

The whole of this utterance is *ex cathedra* valueless and unscientific in my opinion Of a piece with it is the further assertion that—

alteration in the sexual glands .... leads to altered mentality up to insanity

The lines on which beneficial treatment may be carried out based on the above pathology become obvious

Unfortunately, the 'pathology is by no means obvious

Toxæmias, if present should be removed.

By all means let that be done when their presence has been demonstrated.

The glands should be allowed to involute if they are hypertrophied

Certainly by kind permission of the impresario I mean the doctor, for he dread man, can of course, withhold consent, prevent involution, and thus damn the proceedings

I am, Sir, yours faithfully,

Cardiff July 3rd 1916 EDWIN GOODALL

[1] Croonian Lectures THE LANCET Dec 5th (p 1237) 12th (p 1343) 19th (p 1397) and 26th (p 1451) 1914

THE NEEDS OF THE ROYAL MEDICAL BENEVOLENT FUND

To the Editor of THE LANCET

SIR,—The Royal Medical Benevolent Fund, the great benevolent society of the medical profession, is sorely in want of money now Though in ordinary times the medical profession supports its own poor, in these war times this is no longer possible At the May meeting the committee had a balance of only £17 in hand, and at the June meeting was faced with a deficit of £16 The demands were heavy and had to be met, and this could only be done by withdrawing £500 from the bank As the direct outcome of the war, not only are the ordinary cases of poverty greatly increased in number, but an entirely new class of case has arisen urgently requiring relief, in which, without actual poverty, there is great temporary distress—distress, however which it is hoped will relieve itself soon after the war is over and the doctors serving return to their civil duties

At the outbreak of war the medical profession responded freely to the nation s call The Territorial medical officers were at once called out, and other medical men volunteered Both alike had to leave their practice at very short notice, and often without being able to make adequate provision for its continuance and maintenance during their absence Their pay went but little way to supply the loss which their absence entailed, for the working expenses of the practice could not be materially reduced. The result was that many families found themselves in very straitened circumstances Rent, rates, and insurance brook no delay, but, worst of all, school-bills could not be paid, and if help had not been quickly forthcoming the children would have suffered for the patriotism of their father

The following are typical of the cases with which our Fund has had to deal —

A young doctor who had only been in practice a few years volunteered for service, and was killed in action a few days later He left a widow aged 35 with two young boys, aged 3½ and 1 year entirely without means The Fund voted £25 for her immediate necessities, and put her into communication with the Officers' Families Association, which gave further help

A practitioner aged 38 earning £700 to £800 volunteered for service, leaving his practice in the hands of a neighbour who was not a success There were two young children, and an ther baby was born shortly after the husband left. The wife contracted pneumonia and nearly died A resident patient had to leave the house Rent and other expenses led to a debt of about £80 This the doctor could not meet and he hurried back from the trenches to save his home from being sold up The Fund voted £25 the Guild gave £15 the Officers Families Association £25 and the Professional Classes War Relief Council further help with the result that he returned to the front with his immediate anxieties relieved

A captain in the Territorials was called out and had to leave his practice in the hands of a locum who proved a failure There were seven children aged 2 to 14 Financial difficulties arose and payment of the school fees became impossible Between the Fund and Guild and Officers Families Association, the necessary fees were raised, and clothing which was greatly required, provided

These cases show well the way in which the Fund works, not only by giving relief itself in money and kind, but also by obtaining, through coöperation with other benevolent societies more substantial assistance than it could afford alone

But there is another class in which the distress is perhaps even greater and adequate relief more difficult It is that of men who left home and a good practice in vigorous health and who have come back, crippled by wounds or with health impaired, to a practice severely damaged by their absence and without the strength or energy to regain the practice and position which they sacrificed. Our Fund has set apart a special sum to meet emergency claims of this kind yet the demands are so great that it will soon be exhausted We cannot now rely on the profession alone to supplement it largely for the medical profession like all other professions is hit very hard by the war and has no longer its old resources to draw upon What is required is an emergency fund large enough to deal adequately with these emergency cases arising directly out of the war and for this we are

St Marylebone, Shoreditch, Bethnal Green, and Stepney The 7 fatal cases of enteric fever were 4 below the corrected average, and belonged respectively to St Marylebone St Pancras, Islington, Hackney Stepney, Poplar, and Lambeth The 82 deaths from diarrhœa and enteritis among children under 2 years of age were 8 below the corrected average, the greatest proportional mortality from this cause in May was recorded in Paddington, Chelsea, Poplar, Deptford, and Greenwich In conclusion it may be stated that the aggregate mortality in London during May from the principal infectious diseases was 21 0 per cent below the average

Obituary.

HENRY BENJAMIN HINTON, M R C S

A CENTENARIAN DOCTOR

Surgeon Major Henry Benjamin Hinton, who has recently died at Adelaide, South Australia, was in his 104th year and the senior Member of the Royal College of Surgeons of England He was born two years before the Battle of Waterloo at Southsea (Portsmouth) on March 7th, 1813 One of his immediate relatives was Dr James Hinton, who had secured fame as an ear surgeon—a fact which it is thought had some influence on his career, as he selected the medical profession as the field of his life's work From 1832–34 he was a student at the London Hospital, and afterwards went to the Westminster Hospital On May 25th, 1835, he became a Member of the Royal College of Surgeons of England He was appointed surgeon on the East Indiaman *Broadholme* in 1835, and made three voyages to Calcutta. His first army appointment was as an assistant surgeon in the Bengal army in 1839 He served in the Arracan district of Burma for some three years, and then was transferred to Gwalior and assisted in tending the wounded at the battle of Maharajpore. In 1846 he was present at Aliwal in the first Sikh War and at Sobraon, and received the medal and clasp He was at Delhi in the same year, and also participated in the second Sikh War of 1848–49 and in the Mutiny of 1857 In 1858–60 he volunteered for work in China and served with the 70th Native Infantry in Canton, and obtained the campaign medal and received a similar token for his work in the Bhootan Campaign of 1864–65 In 1869, acting on medical advice, Mr Hinton retired from the service and went to Australia He lived in Tasmania and also in Melbourne and Geelong, and finally settled in South Australia Mr Hinton was congratulated by the Council of the Royal College of Surgeons of England on attaining his 100th birthday in 1912, but in the same year had the misfortune to sustain a painful accident and a fractured thigh bone kept him in hospital for some time Despite his accident he displayed extraordinary vitality until a short time before his death He enjoyed excellent health for his years and retained his mental faculties in a wonderful degree In his early life he was obliged to wear glasses but these he abandoned in middle age Towards the close of his long life he could read books and write his letters without any artificial aid to his sight He was a non smoker practically a total abstainer, and a small eater Mrs L H Sholl of Adelaide, and Mr Reginald Hinton of Tasmania are the two surviving children

DONATIONS AND BEQUESTS —The Directors of the Powell Duffryn Steam Coal Company have given £1000 towards the proposed extensions to King Edward VII Hospital at Cardiff —The Lord Mayor of Leeds has received a contribution of £3500 from the estate of the late Mrs Sarah L S Geldart towards the extension of the Leeds General Infirmary

QUEEN'S UNIVERSITY, BELFAST —At the final degree examinations in medicine out of 35 candidates 27 passed The success of the women candidates was remarkable Miss Grace English was first of all the candidates gaining the £20 prize and first in obstetrics for which she was awarded the £30 scholarship, Miss M Purce was second of all the candidates and won the £50 exhibition for being first in medicine while Mr Joseph P McGinley was third candidate and was first in surgery and obtained the £30 prize All three candidates were awarded first-class honours

Correspondence.

"Audi alteram partem

THE REGISTERED PRACTITIONER AND THE UNCERTIFIED MATERNITY NURSE

To the Editor of THE LANCET

SIR —I am directed by the President of the General Medical Council and the chairman of the Central Midwives Board to send you for publication the accompanying copy of a correspondence which has recently taken place between a registered medical practitioner in England and the chairman of the Central Midwives Board with regard to the conditions under which a medical practitioner may properly cooperate with an uncertified woman, not being a nurse employed by him, in attending a maternity case

I am, Sir, yours faithfully

G W DUNCAN
Secretary Central Midwives Board

Westminster S W July 3rd 1916

[COPY]

DEAR SIR,—Do you mind telling me if, in your opinion, the following case is that of 'covering an uncertified midwife"? Mrs ——, who was in practice before the Act and who has since been crossed off the Roll, or to be strictly accurate, has resigned, still acts as a nurse, and tells everybody who comes to her that she cannot act without a doctor, and sends all the people to me Am I justified in going to them? The instruction I give is that they are to send for me directly they want me, and in the event of the child being born before I arrive that the placenta is always to be kept for me to see

As I have been in practice over 35 years, and done a good deal of midwifery, I am naturally anxious not to break the law, and sooner than do that would rather tell Mrs —— that I cannot go with her, either as a nurse or in any other capacity I am sorry to trouble you, but believe you are the chairman of the Central Midwives Board

Yours truly,

June 8th 1916

DEAR SIR,—In reply to your letter of June 8th forwarded to me, in such a case as that which you mention—the woman having already been struck off the Midwives Roll or having resigned—

You must take care that it is clearly understood that any patients whom you attend with Mrs —— are *your* patients and not hers, though she may have sent them

In any dispute on this point the C M B always goes on this principle, that the case belongs to the person who has undertaken to attend the confinement whenever it occurs (day or night) even if normal A monthly nurse summons the doctor so that he may conduct the delivery

In many of the disputed cases it has been plain to the Board that this arrangement has not been made, but that the midwife and doctor have agreed that the doctor should not be called at night except in case of some abnormality or that he should not be called to deliver at any time except in case of some abnormality

In these cases the Board holds that the case belongs to the woman, and that the doctor is covering her

In your case I should write your instructions to the midwife and should keep a copy in case of any dispute

There is nothing to prevent Mrs —— from acting as a monthly nurse under your orders You are responsible for the cases and for Mrs —— nursing of them

I am glad to help you and only wish that more practitioners would adopt the course which you have adopted

Believe me yours very faithfully

F H CHASE [illegible]

Littlemead Nutley Uckfield June 12th 1916

DEAR SIR —I am more than grateful to you for your letter and advice I have written to Mrs —— and enclose you a copy

I wish to carry out the Act both in the spirit as well as the letter and am naturally anxious not to run any risk myself

With kind regard Yours truly

June 1[illegible] 1916

C [illegible]

To Mrs ——I have read [illegible] with you I [illegible] patient [illegible] [illegible] to this [illegible] [illegible] these [illegible] I can [illegible] by [illegible]

June 1[illegible] 1916

The War.

THE CASUALTY LIST

THE following names of medical officers appear among the casualties announced since our last issue —

Killed

Captain K H. A Kellie R.A M C, was educated at Cambridge and at St George s Hospital, London, and qualified in 1905. He was a well known rowing man, and held appointments at several London hospitals, and was in consulting practice in Queen Anne street before joining the R.A.M C in April, 1915

Lieutenant J B Haverson, R.A M C, who came over with the Canadian Contingent, graduated at the Manitoba Medical College in 1915

Died

Major G H M Dunlop, R.A.M C, qualified M.B at Edinburgh University in 1890 and was in practice at Abercrombie-place Edinburgh, when war broke out

Lieutenant J St J Dundon R A.M C, qualined recently and thereupon joined the R.A.M C

Captain N J Hofmeyr South African Medical Corps

Wounded

Captain T C Clarke R.A M.C

Lieutenant E C Lambert, R.A.M C attached to the East Surrey Regiment

Lieutenant R C B Briscoe R A M C

Lieutenant D St. C Creighton, R.A.M C attached to the Royal Field Artillery

Lieutenant V F Stock, R A M C

Lieutenant J Unsworth, R.A M C

Captain N Black R.A.M.C attached to the Argyll and Sutherland Highlanders

Captain W T Smith, R A M C, attached to the Kings Liverpool Regiment

Believed to have been taken Prisoner at Kut-el-Amara

Major E F E Baines, I.M S

DEATHS AMONG THE SONS OF MEDICAL MEN

The following sons of medical men must be added to our lists of those who have fallen during the war —

Armourer Corporal I O'D Watson, 10th Battalion Canadian Infantry only son of the late Lieutenant-Colonel J Watson, R.A.M.C

Lieutenant E H Bird, Royal Fusiliers, attached to the Royal Flying Corps second son of the late Dr A. H Bird

Lieutenant H. A. Llewellyn South Wales Borderers, only son of the late Dr J D Llewellyn of Bargoed South Wales

Lieutenant J J Ball, Royal Field Artillery, only son of Dr J B Ball of Upper Wimpole-street London

Private C P S Morris Canadian Infantry son of Dr C E Morris of London Ontario

MENTIONED IN DESPATCHES

In a despatch received from Lieutenant-General J C Smuts Commander in Chief of the East African Force, dated June 30th, 1916 the names of the following medical officers are mentioned —

Staff—Maj R T Brown R.A M C Col. (temp Surg Gen.) G D Hunter C.B C M.G D S O A M S Lt.-Col. C A. Johnston I M.S Lt.-Col. C J O'Gorman, D S O., R.A.M.C Lt.-Col. R. G Turner I.M.S

Feridis Imperial Service Sappers and Miners—1st Class Sub-Asst. Surg. Majid Abdul

East African Medical Corps—Capt C V Thorn on

East African Army Medical Corps—Capt. S G Grinsell.

East African Medical Corps—Lt -Col. A. D Milne Cap J McP Mackinnon Temp Cap C J Wilson.

Indian Medical Service—Maj E. T Harris Maj C. G Seymour Capt G T Burke Capt R. S Townsend.

Indian Subordinate Medical Department—3rd Class Assist Surg A. R. Emmett

In a despatch received from General Sir Beauchamp Duff Commander in Chief in India, the names of the following medical officers are mentioned —

Capt F R. Coppinger R.A.M C Maj T B Kelly I.M.S Lt.-Col L F Smith, R.A.M C Lt. J S Townley R.A M.C (T.F) Assist. Surg E H Gillson I.S M.D Maj G E Cathcart, R.A.M.C Lt.-Col. B H Charterton, I M.S Capt. J Cunningham, I.M S Maj J K. S Fleming I.M.S Lt.-Col. R. J W Mawhinny R.A.M.C Maj G F Lurg, R.A.M C 1st Class Assist Surg E V Duckworth 3rd Class Asst Surg A. V Quick

The names of two civilian medical men, Dr A. Macrae and Dr J C Young of the Kelah Falconer Mission, are also mentioned.

OBITUARY OF THE WAR

SIDNEY EDWARD PUNCH, L R C P & S IRELAND,

SURGEON ROYAL NAVY

Surgeon S E Punch, who lost his life on H M S *Indefatigable* in the naval engagement of May 31st was in his thirty first year and son of the late Philip Edward Punch of Ardfoile, Cork. He was educated at Clongowes Wood College, Co Kildare, and Ampleforth College, Yorkshire, and then spent five years in his father's office (wholesale tea merchants) before entering University College Cork, as a medical student After studying in Dublin he passed his qualifying examination in 1912, entering the navy three months later Surgeon Punch was good at field sports, he played in his University College Rugby fifteen and in the cricket eleven, was fond of sailing, and had won prizes in diving competitions

A senior colleague writes thus of Surgeon Punch 'Though only four years in the Naval Medical Service before meeting his death Sidney Punch had already endeared himself to hundreds of naval officers and men His was a charming personality, always cheery—sometimes under circumstances that might well depress many another man—willing to help others, a loyal and cheerful assistant He took part in all sports, and was ready to take as good as he gave. Punch was, to sum up in a single sentence, 'A good Irishman'"

HUGH LEIGH NORRIS M R C S ENG, L R C P LOND,

FLEET SURGEON ROYAL NAVY

Fleet-Surgeon H L Norris, who was lost on H M.S *Indefatigable* in the naval engagement on May 31st was son of the late Dr Henry Edmonds Norris of Charmouth, and grandson of Captain Marryat, the famous writer He was educated at Dulwich College and St Thomas s Hospital qualifying in 1898 and entering the navy in the same year Fleet-Surgeon Norris's activities were not confined to his professional work he was an artist of some ability and his sketches were of use to the service. Following in his grandfather s footsteps he published two books "Rice Papers and China Side besides contributions to various journals, including *Punch* He was good at games a good average football player, and devoted to sailing

A colleague writes of Fleet-Surgeon Norris "It was on his return home from abroad where he had seen active service, and at the Royal Naval Barracks Portsmouth to which he had been appointed, that I renewed my friendship with Norris and again enjoyed his genial wit and ready smile and the manly qualities which so endeared him to his messmates By his medical colleagues and patients alike he was deservedly held in high esteem, for he possessed a high professional knowledge and an intimate comprehension of the

driven to appeal to the public as well as to our own profession

We trust that our appeal will meet with a liberal response both from the public and from the medical profession for unless fresh funds are quickly forthcoming it will be impossible to continue the relief which is so urgently required —We are, Sir, yours faithfully

JOHN TWEEDY, President
SAMUEL WEST Hon Treasurer
G NEWTON PITT, Hon Secretary

11, Chandos street, Cavendish square,
London W July 1st 1916

THE MEDICAL DIRECTORY

To the Editor of THE LANCET

SIR,—Our annual circular has been posted to the profession to-day In view of the difficulties in obtaining labour, we are most anxious to have returns made to us as promptly as possible We hope that practitioners who are serving in the navy and army will have arranged for their circulars to be forwarded to them

We are, Sir, yours faithfully,

July 4th 1916 J AND A CHURCHILL

WOMEN STUDENTS AT THE LONDON HOSPITALS

To the Editor of THE LANCET

SIR,—I note that in your issue of July 1st Professor W D Halliburton states "that St George's Hospital has made a step forward in admitting a limited number of women students to 'their' wards, and that the experiment has proved such a complete success that he is hopeful that other hospitals will follow their example" Professor Halliburton, however, does not mention the fact, of which he is doubtless aware that St Mary's Hospital has already thrown open its doors to women students at the request of the authorities of the London School of Medicine for Women

Since May 1st women students have been admitted to the wards of St Mary's Hospital for clinical instruction, and at the present time 12 are working there This number, it is expected, will be largely augmented in October No request was made for admission of women students to courses of instruction in preliminary or intermediate subjects

In justice to St. Mary s Hospital Medical School I have thought it my duty to place these facts before you

I am, Sir, yours faithfully

JOHN F H BROADBENT,
July 3rd 1916 Dean of St. Mary s Hospital Medical School

SPINAL ANÆSTHESIA, WITH REFERENCE TO ITS USE IN THE TRENDELENBURG POSITION

To the Editor of THE LANCET

SIR,—Will you allow me to add the following remarks to my paper on the above subject in answer to Mr A G Stewart s letter, which appeared in your issue of June 24th?

In the case of the child aged 3 the injection was made in the third lumbar space, in the others in the second lumbar space I was aware of the continental work done in relation to this position and I heard Professor Jonnesco give his interesting lecture on high spinal anæsthesia at the Royal Society of Medicine in 1909 and of course, did not mean to claim any originality As to the general anæsthetic given in combination, I have used spinal anæsthesia in the dorsal position in many abdominal operations without any general anæsthetic but our object in these cases in giving a very small amount of general anæsthetic was to prevent psychic shock and to do away with the discomfort of the position I am Sir yours faithfully

H M PAGE

July 3rd 1916

ALIMENTARY REST IN DIABETES

To the Editor of THE LANCET

SIR —Your leading article in to-day s issue does very scant justice to F M Allen Allen bases his methods of treatment upon experimental work on animals and not upon hypotheses, in this it differs from that of Guelph. Many of his followers have taken but a few steps along his path and failed to see the goal The word "drastic" when applied to a treatment is misleading The prolonged fast is an essential part of the treatment and any case which is not submitted to alimentary rest until sugar disappears from the urine has not been treated by Allen's method and should not be included in records under that heading The reason for the fast is not that it leads to the disappearance of sugar from the urine—that observation is simply a convenient method of determining that the fast has been of sufficient duration—but that it leads to an alteration in metabolism which permits a greater katabolism of carbohydrates In my experience the severe cases prove the value of the method, the chronic cases yield to treatment which does not test so severely the control of the patient

Although many hundreds of cases have been treated in America, many suffering from severe disease, with most happy results, let us wait until we have more evidence before we pass judgment but do not let us prejudice the case by asserting that the treatment is of less value in severe cases than in mild —I am, Sir yours faithfully,

Portland place W July 1st 1916. O LEYTON

THE STRETCHING OF SCAR TISSUES IN MOUTH LESIONS

To the Editor of THE LANCET

SIR,—The description of a simple device for stretching scar tissue associated with mouth lesions may perhaps be of some value at the present moment Its use applies particularly to those cases where the lip and cheek are bound down by scar tissue to the subjacent structures The apparatus consists of a ring made with rubber tubing into which wire is introduced the free ends of the tubing being fastened together to form a complete ring The ring is placed between the lip and cheek on the one side and the gum supported by bone on the other side in such a manner as to bring pressure to bear upon the scar tissue By increasing the size of the tubing and the tension of the wire the pressure can be increased without causing discomfort to the patient beyond the presence of the apparatus No 8 size of tubing has been used most frequently at the commencement The wire used is similar to that used as a driving cord for dental engines, it is twisted spirally The ends of the tubing are fastened together with rubber solution one end being made to overlap the other

Previous to the introduction of this apparatus I had for some years been using pads of cotton wool and simple tubing which has not been strengthened, but used chiefly in a U form The chief use formerly has been to free the lip in cases of hare lip The method was referred to by me at the recent discussion upon injuries of the jaws at the Royal Society of Medicine

I am, Sir, yours faithfully

W WARWICK JAMES

Park-crescent, Portland place W June 27th 1916

ENTERIC FEVERS IN THE TROPICS A POINT IN NOMENCLATURE

To the Editor of THE LANCET

SIR —With reference to the slight change which will be made in the heading of the section referring to typhoid and paratyphoid fevers in the August issue of the *Tropical Diseases Bulletin* it may be safely stated that the medical profession is not satisfied with the present classification of the typhoid fevers or with that of the bacilli which cause the separate infections There is a fairly well marked group of enteric fever having certain features in common and if those diseases are grouped under the word enteric the bacilli naturally fall into a group [illegible] *Enterica typhosa* = *B typhosus* [illegible] and *E paratyphosa* = *B paratyphosus* [illegible] To [illegible] such change of nomenclature [illegible] majority would only create further confusion [illegible] suggestion is made with a view to a [illegible] unsatisfactory state of things

I am Sir yours faithfully

J H [illegible]

[illegible]

artificial abscesses and for the detection of egg albumin in urine, as well as a note on the jaundice caused by the ingestion of picric acid

Tests for Turpentine and Paraffin in the Pus of Artificial Abscesses[1]

Microchemical tests —The pus from an abscess caused by turpentine or paraffin contains oily globules visible on microscopical examination Just as fats do, these globules reduce osmic acid in presence of Nile blue paraffin a golden yellow turpentine brownish yellow The action of the staining agent attains its maximum if we take the precaution to deposit it beforehand on the glass slide on which the pus is to be spread by simple evaporation of a drop of the alcoholic solution Nile blue 0·20 gm in 20 c c. of 80 per cent alcohol In contrast with the vegetable oils fatty globules of vaseline or oil of vaseline possibly derived from the dressings the droplets of turpentine dry in the open air These latter droplets moreover are alone soluble in ethylic aldehyde To ascertain that such is the case we introduce one or two drops of aldehyde between the slide and the cover glass stained with Nile blue watching under the microscope the action of the solvent on the tinted droplets

Macroscopic reactions —If we treat pus from such an abscess with alcohol at 90° (2 c c of pus in 5 c.c. of alcohol) any turpentine or paraffin therein contained will be dissolved (a) If to 2 c c. of water we add two drops of the preceding alcoholic solution and one drop of ordinary commercial formol we witness a deep-brown grenadine tint if the pus contains paraffin (b) The alcoholic solution (5 to 10 c c.) poured into a large quantity of water (450 c c) saturated with picric acid when shaken leaves on the surface of the liquid droplets or an oily ring coloured orange-yellow in the case of paraffin colourless in presence of turpentine The smell will enable us to distinguish between turpentine and paraffin (c) A small quantity of butter of antimony ($SbCl_3$) on a platinum wire plunged into the air of the recipient turns reddish-brown in presence of turpentine vapour (Fibau's test) (d) Lastly in a subject who has induced abscess formation by the injection of essence of turpentine the urine often presents an odour of violets when passed

The Detection of Egg Albumin in Urine[2]

Egg-albumin is often made use of in order to simulate albuminuria. A little white of egg is beaten up with plain water and allowed to deposit Only the upper part of the liquid, containing very little albumin is employed. In some instances the malingerer himself injects it into the urethra or into the bladder by the aid of an ordinary gonorrhœal syringe In others he keeps it in a small phial which he hides "up his sleeve" and adds to the urine as he passes it To determine the presence of egg-albumin proceed as follows (1) Take 5 c c. of the suspected urine and introduce right to the bottom of the tube without mixing 5 c.c. of Maurel's test solution Should the urine contain egg albumin a precipitate forms either at once or in the course of a few minutes at the line of junction of the two fluids On mixing the two fluids the precipitate rapidly increases This gives no precipitate with sero-albumin In some rare instances however in the absence of egg albumin we meet with a precipitation ring when the urine contains a large proportion of aceto-soluble albumin albumoses, or blood but on shaking up the precipitate dissolves or at any rate does not increase A mixture of equal parts of ordinary commercial formol and glacial acetic acid behaves like Maurel's test solution. Maurel's test solution has the following composition Solution of caustic soda 33 per cent 25 c c solution of sulphate of copper 3 per cent 5 c.c glacial acetic acid 70 c c

Biochemical reaction —When we obtain a positive reaction with Maurel's solution and the aceto-formol solution the biochemical reactions of the precipitates must be ascertained in a suitably equipped laboratory With this object in view prepare rabbit anti-ovalbumin by the repeated subcutaneous injection at six days interval (six in all) of 2 c c of pure ovalbumin obtained under aseptic conditions. The rabbit blood is obtained by introducing a platinum needle into the marginal vein of the ear The blood is allowed to coagulate the supernatant serum is decanted and placed in 5 c.c ampoules then being placed for half an hour in the warm chamber at 55 C The test is applied as follows: Pour 1 c c of the filtered urine into a small test tube (same as used for Wassermann reaction) Introduce 8 drops of anti-ovalbumin The drops of serum fall to the bottom of the tube and set up a copious precipitate if the urine contains ovalbumin in the contrary event the urine remains clear The serum must not deposit in presence of normal solution or normal urine These tests do not exclude other methods of investigation nor the close observation of the subject, washing out the bladder &c Sometimes the malingerer operates more clumsily making use of a strong solution of ovalbumin in which case the proportion of albumin is necessarily high with numerous threads and colourless globoid masses easily seen by oblique illumination floating in the urine

A Note on Jaundice Caused by the Ingestion of Picric Acid[3]

Picric acid in the organism is transformed by reduction into picramic acid and even into a more advanced derivative, triaminophenol and others which are eliminated in the urine. It is very uncommon to find traces of actual picric acid In order to form an idea as to the nature of the products eliminated and the duration of the elimination of a small quantity of picric acid just enough to provoke slight jaundice an assistant was good enough to swallow 20 centigrammes of the powder in a cachet Within two hours and a half his urine began to show traces of reduction products more advanced than picramic acid The proportion steadily increased and seven hours after the ingestion of the acid traces of picramic acid began to appear On the morrow—i e 25 hours after ingestion—the sclerotics were faintly jaundiced and at the same time the urine became pomegranate red. This slight jaundice which might easily have escaped notice only lasted seven or eight hours The next day the colour of the urine had returned to its normal yellow though a shade darker than usual In man the elimination of a large quantity of picric acid may take upwards of 20 days Picramic acid is turned yellow by strong acids red by alkalies. The picramates are very soluble in water whereas picramic acid very slightly so is readily taken up by organic solvents especially acetic ether ordinary ether and chloroform Picramic acid is a fast stain for wool colouring it a reddish brown The colour of picramic urine is usually orange-red (pomegranate) varying in depth sometimes blood red or almost black Nevertheless a urine normal in colour may contain traces of picramic acid without being red in which case there is usually no concomitant jaundice With acids the red colour turns yellow For instance in testing for albumin with aseptol sulpho-salicylic acid or nitric acid, we get a yellow zone above the acid Picramic urine normally acid remains sweet for a long time In neutral or alkaline urine on the contrary the picramic derivatives disappear more or less rapidly within a few hours from the urine It is therefore important to make the examination as soon as possible after the emission of the specimen

M de Mithouard has provided us with a very delicate test for traces of picric acid as also of picramic acid and the more advanced reduction products Pour 2 c.c. of the suspected urine into a test tube and 1 5 c.c of ammonia. Shake and introduce with a drawn-out pipette about 1 c c of the ferrous tartrate test solution (free ferrous sulphate 2 grammes, tartaric acid 10 grammes, water 100 c c) conveying it to the bottom of the test tube At the junction of the two layers we get a ring of more or less deep cherry red colour best seen against a white background with the back to the light When the urine contains more advanced reduction products than picramic acid we see below the red ring from which it is usually separated by a colourless area, a blue ring of variable intensity The diazoreaction invented by Mr Desrien for picramic acid, is less sensitive Into a test tube containing 2 c c of the suspected urine put one drop of sulphuric acid (25 per cent) and two drops of a 1 in 10 000 solution of nitrite of soda. Heat exactly one minute in a boiling water bath cool under a stream of cold water Add 3 c c. of ether and three drops of ammonia saturated with naphthol On shaking up, the ether assumes a violet red colour If we add to picramic urine a solution of subacetate of lead drop by drop shaking well after each addition, at a given moment the precipitate assumes a flesh or salmon tint The addition of chloride of barium causes an orange precipitate varying in depth

To extract picramic acid from urine in order to afford convincing evidence of its presence and at the same time to provide a *pièce de conviction* we proceed as follows Into a decantation vessel pour about 100 c.c. of urine slightly acidified with a few drops of acetic or phosphoric acid (for very dark urines 10 c c will be sufficient, while for yellow urines we must use as much as 150 or 200 c c) add about 25 c c. of acetic ether then having corked the bottle shake up thoroughly in order to dissolve the picramic acid Set aside separate the lower liquid (if the acetic acid should have formed an emulsion this is broken up by adding a few drops of alcohol or by filtering the liquid through a plug of cotton wool) Exhaust the urine twice more with acetic ether (15 c c. each time) The acetic ether coloured a more or less orange-yellow is filtered then slowly evaporated in a little capsule with a few inches of woollen thread To the residue add 500 c.c of water heat for 10 or 15 minutes in a boiling water-bath or nearly to boiling point Place the skein of wool in a little glass vessel squeeze it with a glass rod against the edge of the recipient and wash with a few drops of water Then wash in plenty of water soap well, rinse and dry Apply the ferrous tartrate and the diazoreaction test to the liquid left in the capsule mixed if necessary with that in the glass Part of the dyed dried wool will serve as *pièce de conviction* and is annexed to the report Later on should any doubt remain in the mind of the jury some other expert can discover the presence of picramic acid for himself The rest of the wool is placed in a test tube with 2 or 3 c.c. of water and three or four drops of ammonia. On heating the picramic acid dissolves giving an orange-yellow colour of variable depth to the liquid in which the presence of picramic derivatives can be revealed by the ferrous tartrate test and the diazoreaction Acetic ether can be replaced by ordinary ether or chloroform In some instances especially when the urine is not clear it is better to clarify it by means of a 10 per cent solution of Courtonne's liquid (neutral acetate of lead) before commencing the test Or we may add to the urine 10 or 100 c.c. according to the tinge a slight excess of chloride of barium The precipitate washed in a small quantity of water is decomposed by means of a solution of sulphate of soda and a few drops of sulphuric acid Exhaust with acetic acid or ether and continue as above

Although these may not be the favourite forms of malingering, if it exists in this country, the notes are nevertheless suggestive of the kind of evidence which it is desirable to adduce in these very difficult cases The number of cases of malingering in either the French or the English army has been extraordinarily few

---

PHYSICAL CLINIQUE FOR WOUNDED AND DISABLED SOLDIERS —This institution has now been opened at 126 Great Portland street W , and was on view last week, when it was visited by Queen Alexandra and by the Princess Louise Treatment is entirely free of charge Every case will be examined by a member of the honorary medical staff, of whom we gave the names in our issue of June 24th Medical men who have under their care officers who they think would benefit by physical treatment are cordially invited to consult the clinique A complete installation of whirlpool baths has been presented and the committee and their friends have contributed some £300 It is estimated that a further sum of £3000 is required to meet the initial outlay and cover the rent and running expenses for a period of 12 months It is specially hoped that a donor may be found for the mechanical apparatus which has cost about £190 and excited a considerable interest among the visitors last week

BOOKS FOR BRITISH PRISONERS ABROAD —Regimental care committees and relatives and friends of British prisoners of war will do them a good service by

---

[1] From the Military Analytical Laboratory at Chambéry Dr A Hollande [2] Ibid

[3] From the laboratory of testing of the Military Hospital Desgenettes at Lyons

bluejacket Though he had all the sailor s love of home, the call of the sea was in his blood and when, after a brief spell of shore service he was appointed to the *Indefatigable*, he answered the summons with willingness and that devotion to duty that had marked his service career Fallen in action now, he leaves many friends to mourn him The Naval Medical Service has lost a valued officer and the navy a very gallant one "

EDMUND HUGHES FLANIGAN, M B , B CH R U I ,

LIEUTENANT ROYAL ARMY MEDICAL CORPS

Lieutenant E H Flanigan, whose death occurred at Belfast, on June 17th, as the result of an illness contracted on active service, was the eldest son of the late Mr Patrick Flanigan Educated at Clongowes College and University College, Dublin, he qualified in 1908, and after practising for a short time in Belfast went out to South Africa in 1910, where he engaged in practice at Penhalonga, in Southern Rhodesia. On the outbreak of war Dr Flanigan volunteered for war service, and obtained a commission in the Royal Army Medical Corps, being invalided home in February last

Lieutenant Flanigan was a popular figure in Belfast, well esteemed as an able practitioner, and possessed of a wide circle of friends He married in South Africa Miss Mary E Greenwood, of Grahamstown, who was engaged in nursing during the Boer war, and recently on a hospital ship To his widow and friends we tender our sincere sympathy

---

THE BRITISH INTERNED PRISONERS OF WAR AT CHATEAU D'OEX

The British chaplain at Château d'Œx the Rev E Dudley Lampen, M A., writes as follows —The improvement in the men's general health even in such a brief period as a fortnight is very marked They arrived at Château d Oex in a pitiable condition utterly worn out To-day many are walking about apparently well, although a closer acquaintanceship shows that they are still suffering terribly from the effects of their wounds and the terrible experiences they have passed through. Many of the men state that they have met with kindness and skill in German hospitals, and the impression gained from talks with them is that both German doctors and nurses are humane and have usually done all that was possible On the other hand the men speak of unnecessary pain inflicted by operations conducted without anæsthetics, general or local One man had four major operations without chloroform, and no doubt more might have been done to relieve pain and to straighten limbs Stories are told of ligaments severed and injuries done in hospital to produce permanent lameness A large number of men are suffering from leg and foot wounds and shots through the lungs are frequent, head wounds rarer The use of steel helmets seems to have saved lives A remarkable coincidence is that of a man who was shot through the lungs, the bullet entering one side through the rib and passing out on the other, in the South African War he had an exactly similar wound about an inch lower down One of the worst cases is that of blood poisoning This man was ordered to go down a coal mine and work there He refused and was put to work on the coke at the surface A scratch on the arm produced a poisoned wound He applied to the doctor for treatment and was told that he could expect no assistance after having refused to work in the mine Later he became so ill that they were obliged to take him to hospital where he lay four months He is still in bed here but rapidly recovering with care and good food Many of the soldiers are suffering from nervous strain due to ill treatment and insufficient food in German camps A man who was constantly trembling said It s that barbed wire " The sense of being continually shut in continually watched by a sentinel at every hand reacts on the men s nerves It is an immediate relief to them to find in Château d'Oex a complete freedom from barbed wire and sentries The attempt of the Germans to break the spirit of our men has failed, but it has left its mark For the most trivial offences the men were punished One said he was tied to a tree for two hours in the cold Another told how a man was tied to a post head downwards and was only released on the indignant expostulations of the other men A number of men are from the notorious Wittenberg Camp They confirm with poignant additions all that has been reported in many newspapers The loss of limbs among this contingent is not very noticeable, though there are some lacking an arm or a leg Crutches are being used by about 50 men Cases of "gassing" do not seem to have come here to any great extent, though there are a few

Malnutrition has to account for the bad health of many One man related how in his camp when they went to bathe they hardly dared to look at each other they were so emaciated For the most part the parcels from home and from Switzerland were the only suitable food but it is not to be supposed that, in every case where a post card was received from the man to say he had enjoyed the parcel, he had necessarily been allowed to have it. As a punishment for the slightest offence, such as not saluting a German officer whom the soldier may not have noticed, the man was told "You will not have your parcel from home, but all the same you must write the card to say you have had it and that you are quite well," when the reverse was the case If he refused, all his parcels and letters were held back for some time

A Swiss doctor confidently asserts to us that there is good hope of greatly improving the condition of most of the cases of crippling No doubt a long time has elapsed since some of the injuries were received but all that the latest methods can effect will be done to enable the men to recover the use of their limbs The Swiss practice is to get the men as soon as possible into the open Most of the hotels and pensions where the men are located are furnished with balconies, where sun and air baths can be obtained So far the weather has been unfavourable for sun baths, but as soon as summer weather comes much benefit is expected from the action of the solar rays. Exercise is also encouraged within strict limits and under medical supervision The hotels and pensions are divided into sections each of five doctors taking one of the larger hotels and one or more pensions The food is good plain, and abundant The following scheme has been issued by the chief doctor, reckoned as per man per day (grammes where not otherwise stated) Bread 400, milk, 750, meat weighed without bone, 175, potatoes or macaroni, rice peas &c., 100–150, soups 50, vegetables for 10 centimes, cheese or bacon or sausages of the same nutritive value 40, coffee 8, cocoa, 20, butter 10–20, jam 20, sugar 2 pieces The menus are as follows —Breakfast Bread milk coffee or cocoa, jam, butter Dinner Soup (500 gm with 50 gm farinaceous) meat potatoes vegetables coffee (black). Supper Thick soup (500 gm with 100 gm farinaceous), cheese or bacon or sausages macaroni or rice salad The men are well content with the food are thriving upon it and their comfort is generally looked after They occupy well furnished rooms sleep on box spring beds, wool or hair mattresses and have feather pillows Extras such as beef tea, wine and brandy are ordered only by the doctors and are provided by the British authorities at Berne acting through the local civilian committee

---

TESTS FOR THE DETECTION OF MALINGERING AMONG SOLDIERS

A correspondent who is medical officer under the French Service de Santé of a military hospital in Savoy has recently seen a case of eczema oil derma and two of artificial abscess one from turpentine and one from paraffin in soldiers who were not anxious to return to the firing line In other cases of non-terrible complaint such as sciatica and rheumatism he has suspected malingering but has not been in a position definitely to prove it He sends some notes of the latest medical tests for identifying the guilty

THIRD EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICINE

Materia Medica Pharmacology and Pharmacy Public Health Medical Jurisprudence Pathology and Elementary Bacteriology — Ewart Gordon Anderson (second-class honours) Wallace Alexander Freedman (second-class honours) John Gilmour (second-class honours) Mary Kathleen Henegan William Arthur Jaques Phyllis Mardott Bertram Sergeant, and William Edward Mandall Wardill

EXAMINATIONS FOR THE LICENCE IN DENTAL SURGERY (L D S)

First Examination Chemistry and Physics —William Alfred Cowden

Second Examination Dental Mechanics and Dental Metallurgy — Arthur Ernest Murray and Fred Wilkinson

Third Examination Anatomy Physiology and Histology Dental Anatomy Dental Histology and Dental Materia Medica —Wilfred Phillipson Spence

THE OXFORD OPHTHALMOLOGICAL CONGRESS —As already announced, this Congress will assemble next Wednesday at Keble College, Oxford and the two following days will be devoted to addresses and discussion Ophthalmological instruments and apparatus will be exhibited in the anatomical department of the University Museum The honorary secretary of the Congress is Mr Bernard Cridland, Salisbury House, Wolverhampton

WEST LONDON MEDICO CHIRURGICAL SOCIETY — The annual general meeting of this society will be held at the West London Hospital, Hammersmith on Friday, July 21st at 5 P M., when the annual report of council and the financial statements of the treasurer and of the editorial secretary will be presented and the officers elected for the session 1916-17

LITERARY INTELLIGENCE —Dr T N Kelynack is editorially supervising a guide to public and personal service in war time which is to be issued shortly by Messrs John Bale Sons, and Danielsson under the title of Pro Patria The book will describe the chief organisations and institutions which are engaged in war work, and will include a list of Red Cross hospitals

THE LONDON INSURANCE COMMITTEE AND ILLEGIBLE PRESCRIPTIONS —One of the cases of complaint against medical men on the London panel investigated by the Medical Service Subcommittee and reported upon to the Insurance Committee at a recent meeting had an element of novelty The attention of the Subcommittee was called by the father of an insured patient to a prescription furnished by the medical practitioner in question which was absolutely illegible As a consequence it could not be dispensed and was forwarded to the Committee's office, whence a telegram was sent to the practitioner who eventually rectified the matter Through this the patient was without medicine for three days Of the illegibility of the prescription there was no question The Subcommittee reported that its medical members could not decipher either the name of the patient or of the practitioner nor could they determine any of the drugs which the practitioner wished to be employed As an explanation he stated that his handwriting was never clear, and that he had either written the prescription in a bad light or his pencil had failed him He also stated that he constantly suffered from heart attacks which were apt to render his writing worse The Subcommittee went into the question thoroughly calling for other prescriptions in order to compare them, one of which the practitioner was asked to interpret He said that it ordered Lotio Plumbi but it was found that the druggist who had been asked to make it had read it as Mistura Senegæ L I P This must have seemed serious enough to the Subcommittee but it was rendered even worse by the practitioner's admission that Mistura Senegæ L I P was what he had in fact intended the patient to obtain The prescription which formed the subject of the inquiry he said was for Mist Gent L I P, but when his attention was called to the fact that there are three gentian mixtures in the London Insurance Pharmacopœia he said that he meant to order Mist Gent Co It was therefore clear that even he could not read his handwriting As a result the Subcommittee recommended that the medical man should be severely censured and cautioned It may be noted that the Insurance Committee had ordered the inquiry to be held in spite of the complaint having been withdrawn by those entitled to make it In the course of its report upon this case the Medical Service Subcommittee made the observation that "medical practitioners should write prescriptions in such a manner as to enable them to be read without difficulty by the chemists to whom they are presented It might be added to this that bad or careless writing may, either through the delay occasioned or through a misinterpretation on the part of the dispenser be responsible for serious results and that leaving the welfare of the patient out of consideration, the risk of an action for negligence being brought is not one to be despised In the case under comment the Subcommittee also remarked with regard to the alleged state of the practitioner's health that it might be "one of the causes of the extraordinary prescriptions which he seems to issue from time to time" Here again in addition to the risk to the patient there must necessarily be danger of serious consequences to the practitioner

SOUTH LONDON HOSPITAL FOR WOMEN —The new in patient department of the South London Hospital for Women at 103 South Side Clapham Common, was formally opened by the Queen on Tuesday last, and is expected to be ready for patients in a few weeks' time The hospital, which was instituted in 1912 as a general hospital for the treatment of women and children, is designed to accommodate 80 patients, and includes paying wards where a fee of £1 1s to £3 3s a week will be charged The general wards are all cross ventilated single wards, each isolated from atmospheric connexion with any other part of the hospital Arrangement for open air treatment is secured by forming all roofs as flats and attaching balconies to all the wards In the wards themselves natural ventilation is relied on, with extract and inlet flues and arrangements for additional electric fans if required later Both the interior and exterior finish to the entire hospital afford impervious surfaces capable of being washed down An out patient department has been in existence at Newington Causeway since April 1913, two houses having been adapted for the purpose The hospital has been built at the expense of anonymous donors It is officered entirely by women, the only male employees being the engineer in-charge and the stoker The medical staff includes, Mrs Scharlieb M D, M S (Consulting Surgeon), Miss M H Fraser, M B, B S (Physician), Miss M M Chadburn M D, B S (Surgeon), Miss A M Roberts, M D, B S (Ophthalmic Surgeon), Miss E H Lepper, M B, B S, Miss I Pultenev, M.D., Miss M G Thackrah, M D, B S (Assistant Physicians) Miss J H Turnbull, M D, B S, Miss E Davies Colley, M D, F R C S (Assistant Surgeons), Miss C Bernard, M A, L M S S A (Radiographer), and Miss G Brooks, M B, B S (Anæsthetist)

Parliamentary Intelligence.

HOUSE OF COMMONS

WEDNESDAY JUNE 28TH

Dublin Castle Hospital

Answering Mr GINNELL, who asked questions about Dublin Castle Hospital, Mr TENNANT (Under Secretary for War) wrote The ventilation carried out by nine large windows and two doors is quite ample, irrespective of the height of the ceiling Daily outdoor exercise for prisoner patients has not been curtailed Each patient capable of walking gets one hour's exercise daily The time is deemed sufficient by the visiting medical staff The hours allotted for visitors to Sinn Fein prisoners have not been restricted and are similar to those allowed for visitors to wounded soldiers The Sinn Fein prisoners are in every way treated from the point of view of accommodation medical attendance, and food in exactly the same way as are the wounded soldiers of the British expeditionary forces, for which purpose Dublin Castle Hospital was instituted

THURSDAY, JUNE 29TH

Sick and Wounded Soldiers

Mr KING asked the Home Secretary whether during the last two months any more lunacy institutions had been handed over in part or entirely for the accommodation of soldiers or sailors —Mr BRACE (for Mr H SAMUEL) replied The Northampton County Asylum, Berrywood, and the remainder of the Middlesex County Asylum, Napsbury were handed over for the accommodation of sick and wounded soldiers on April 30th and May 14th respectively

Mr KING asked the Under Secretary for War whether it was in contemplation to take over from asylum authorities any further accommodation for uncertifiable nerve shaken soldiers or sailors who were in consequence to be placed as in the Middlesex county asylum, under asylum management —Mr TENNANT answered No, Sir

Consent to Surgical Operations

Mr CHANCELLOR asked the Under Secretary for War whether a man who had been passed into the army suffering from a disease believed to be curable by a surgical operation could, while in the Army, be forced to undergo such operation without his consent.—Mr TENNANT replied The man's consent is always obtained before an operation is performed on him.

Mr SNOWDEN In the case of a minor is the consent of the parent necessary?—Mr TENNANT In that case I think recourse would be had to the parents

Re-examination of Rejected Recruits

Mr HOGGE asked the Under Secretary for War why the War Office had ordered 300 000 copies of Army Form W 3299, and whether it was their intention to use them in recalling men already rejected on previous occasions as medically unfit, or whether the War Office still adhered to the pledge given by him on May 24th —Mr TENNANT answered It is the intention of the War Office to use Army Form W 3299 for the purpose of calling up for re-examination those men

bringing to the notice of the interned in their letters to them the fact that, if they are desirous of carrying on serious reading, they can obtain free of charge educational books on almost any subject by writing to Mr A T Davies at the Board of Education, Whitehall, London, S W To facilitate the despatch of parcels and books and, if possible, the organisation of an educational library in every camp, all applications for books should, as a rule, be sent through, or endorsed by, the senior or other responsible British officer or non-commissioned officer in the camp Where for any reason (which should be stated in the application) this course is impracticable requests from individual prisoners will as far as possible be acceded to

AMBULANCE GIFTS TO THE RED CROSS — A convoy of motor ambulance cars which have been purchased with part of £40,000 subscribed by the members of Lloyd s and presented to the French army were inspected by the King at Buckingham Palace on June 24th The convoy includes 20 ambulances, two reserve ambulances, a travelling workshop and a staff car Another convoy purchased by the British Sportsmen's Motor Ambulance Fund was inspected on the same day by Queen Alexandra at Marlborough House, and afterwards handed over to the Wounded Allies Relief Committee On June 27th the King inspected 25 motor ambulances presented to the Red Cross Society by brewers Owing mainly to the efforts of a little girl, the daughter of a Burnley miner, a fully equipped ambulance has been presented to the Red Cross The money has been collected from the workpeople of Burnley mostly in pennies, and totalled over £1100 In making an inspection of the ambulance on June 29th at Marlborough House, Queen Alexandra remarked that the efforts of the little girl supplied a useful object lesson to any who because they could not do very much might be discouraged from doing anything Other recent gifts to the Red Cross include a fully equipped motor ambulance by the Amalgamated Society of Watermen, Lightermen, and Bargemen —During the first five months of the present year Mme Clara Butt has raised £5365 for the Red Cross Society and the Order of St John

DENTAL MOTOR AMBULANCES —The London Committee of the French Red Cross have sent to the front three dental ambulances, one presented by Miss Kathleen Woodburne, of Leeds another by the city of Glasgow, and a third by a group of manufacturers of dental requisites A qualified dental surgeon will be in charge of the ambulances and the chauffeur of each car will be a dental mechanic

MARYLEBONE MEDICAL WAR COMMITTEE —At a meeting of the registered medical practitioners of the borough of St Marylebone held on June 26th, the number of the new Local Professional Committee was fixed at 15 with power to coöpt up to 20 The following candidates were elected—namely, Dr E A Boyd Dr G Blacker Mr W McAdam Eccles Mr N Bishop Harman, Mr B F Hartzhorne, Mr R Lake, Dr W H Neale, Mr J Irwin Palmer Mr J Pollard Dr E Tait Robinson Sir Rona'd Ross Dr D Roxburgh Mr W G Spencer, Dr Seymour Taylor, and Dr R H Wilbe The committee was authorised to fill vacancies occurring at any time, subject to the approval of the Central Medical War Committee

GRANTS FOR BELGIAN PRISONERS —The Wounded Allies Relief Committee has arranged for two special grants to be made to the Committee for the Relief of Belgian Prisoners in Germany These grants will benefit not only sick and wounded Belgian prisoners in Germany, but also those interned in Switzerland

---

THE CARNEGIE TRUST IN IRELAND —Reference has been made in THE LANCET to the investigation being conducted in England by Professor E W Hope on behalf of the Carnegie United Kingdom Trust A similar investigation for Ireland has been entrusted to Dr L Coe Bigger medical inspector of the Local Government Board A circular letter outlining the proposed scheme and asking for information on certain points has been addressed by the Local Government Board to the several local health authorities The outline of the scheme covers the following points Organisation of house visiting particularly of expectant mothers and of young children, the establishment of maternity centres the provision of midwifery facilities and the maintenance of day nurseries Local health authorities are invited to co operate as far as possible with local associations and local philanthropic efforts

Medical News.

UNIVERSITY OF MANCHESTER —The Graduation Ceremonial took place on July 1st From the annual statement of the Vice Chancellor we learn that 1300 past and present members of the University are serving with H M Forces in the war or engaged in approved war service The number of students who have withdrawn to join the Forces or render national service during the present session is 160 Adding these to the 230 who had previously withdrawn, this gives a total of 390 students on military naval or other service There are 52 members of the teaching staff with military or naval duties while 26 members of the medical staff are members of the R A M C The number of past and present students who have been killed in action, or who have died through the war, or who are reported as "missing" has now reached 90 The number of students in the Faculty of Medicine in 1915-16 was 251, as compared with 256 in 1914-15 and 305 in 1913-14, while in all faculties in 1915-16, the number was 1165, as compared with 1415 and 1654 in the previous two years There are now 67 women in the Faculty of Medicine As the number of men students has been largely reduced owing to the war it is estimated that the number of men students next session may not exceed 375, including technology A gift of £50 has been made by an anonymous donor for an entrance scholarship in the Faculty of Medicine of £25, tenable for two years. A considerable number of degrees were conferred in absentia In the Faculty of Medicine the degree of M D was conferred in absentia on Lovel Moss and William Stirling, jun, both of whom are on active service abroad

At examinations held recently the following candidates were successful —

FINAL M.B AND CH.B

J H Albinson H Chadwick R. Cherasul W Christopher R Colley W C C Easton *E W Fish Eva L Glasier G Lysaght R L Newell, F C Ormerod Nesta H Perry Dorothy Potts and G B Wild

Forensic Medicine and Toxicology—G F Archer Alice M A Arnold Mercy D Barber W T G Boul Hilda K Brade Francis G Bullough C F J Carruthers Kathleen L Cas. Ruth E Conway J Holker K Kletz, E N I Martland J A Lauton R S Paterson, A. B Platt Elizabeth C Powell J Shlosberg D M Sutherland and H Taylor

* Awarded distinction in Surgery

THIRD M B AND CH B

Pharmacology and Therapeutics and Hygiene—N Abdoh T H. Almond Sybil Bailey T Colley S F Critchley F L Heap A N Kirkham J Mills Kathleen O Donnell Harriet J L Reid, Norah H Schuster L. J Schwartz Marie Wardman and F L Whincup

Hygiene—Mary G Cardwell Ellis Pigott H T Savage V T Smith and G R Wadsworth

Diploma in Dentistry (Final Examination)—G P Anderson B C Betts S K Gibson R D Hankinson H Masters and G C. Rorley

Dental Surgery, Dental Prosthetics, and Operative Dentistry—T I Healey

ROYAL COLLEGE OF SURGEONS OF EDINBURGH —At the recent Dental Examinations just concluded the following candidates passed the First Dental Examination —

Euphemia Ross Macdonald and Leonard Lee Isaacs

The following passed in the subject of Chemistry and Physics —

Gilbert Dilworth and Wycliffe Hoghton

At the same diet the following candidates passed the Final Examination and were granted the diploma L D S R C S Edin —

Duncan Macgregor Edinburgh Sampson Mathews Antrim Co Antrim; and G Jacobus Byers South Africa

UNIVERSITY OF DURHAM FACULTY OF MEDICINE —At examinations held recently the following candidates satisfied the examiners —

FIRST EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICINE

[illegible]

SECOND EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICINE

[illegible]

Mr SAMUEL No, it does not apply only for the period of the war It applies permanently Continuing, the right honourable gentleman said that the Retrenchment Committee had also reported in favour of the abolition of these reports He did not know how any Member of the House could support their retention They were not worth the expenditure that they incurred, and he could not continue to ask the Treasury for the £12,500 per annum which they cost in the existing circumstances

Sir H CRAIK said he was unwilling to delay a Bill of this kind which was an emergency measure But he was afraid the arguments of the Home Secretary had not persuaded him that this proposal was justified He would be the last to oppose any serious proposal for retrenchment, but really they ought to cultivate a sense of proportion He did not think that the money involved was great enough to induce certifying surgeons to raise an opposition from one end of the country to the other against this proposal He believed that there were only about 100 surgeons who had anything like considerable pay out of the annual sum of £12,500 About 1900 out of the 2000 surgeons only received mere pittances in fees for the work they did These were not salaried officers Certain pay was given for doing certain work. He did not think it was fair to raise a question which had been the subject of dispute for years in an Emergency Bill In 1901 and 1905 legislation of a similar kind was attempted and had to be abandoned because of the opposition of the working classes There was not a single representative of the medical profession on the Committee to which the Home Secretary had referred, nor was a single medical witness called before that Committee

Mr SAMUEL Oh, yes

Sir H CRAIK said that the certifying surgeons had distinctly informed him that they were not asked to give evidence on the subject The certifying surgeons considered the professional aspect of the matter as more important than the monetary consideration They were intimately acquainted with the workers and the accidents to which they were liable, and it was because they wanted to do their best for the workers and had deep sympathy with them in their work that they desired that this part of their work should not be taken away from them He hoped that the Home Secretary would withdraw the obnoxious clause on the Committee stage

Mr TOOTILL said that it was very desirable to effect retrenchment in the Departments of the State, but this should not be done where it was likely to interfere with the protection and safeguards, which ought to be strengthened rather than weakened, in reference to the working classes of the country In taking up this position he was not animated at all by any kind of interest in the certifying surgeons

Sir P MAGNUS said he did not desire to oppose the second reading of the Bill, and he would reserve his additional arguments in favour of the retention of these duties by the certifying surgeons until the Committee stage

Mr WALSH said he doubted whether trade unionists all over the country had been aware that this clause was to be forced For his part he would see that they were put into possession of the facts before the Committee stage

Mr BRACE (Under Secretary to the Home Department) said he was very surprised at the heat which had been developed in the debate and at the suspicion under which the Home Office lay because of this clause in the Bill They were introducing this proposal because they held that it was an essential and necessary reform in war time or any other time In 1914 the total number of accidents notified amounted to 159 413, and the number which were also notified by the certifying surgeons was 52,563 or less than one third of the total accidents He had examined hundreds of these reports, and in most cases he found them exactly the same as the report which the factory inspector sent in based on information supplied by the employer If he thought for one moment that the abolition of these reports would introduce danger to the health of life or limb of the factory workers he would not bring forward this proposal What were needed were more factory inspectors with technical knowledge and if they were to have a higher standard of medical inspection the Home Office would prefer to have full time medical inspectors rather than this system of certifying surgeons which at present existed

Mr ANEURIN WILLIAMS took objection to the proposal to abolish certifying surgeons The certifying surgeon had important functions to perform and important information to obtain He often reported on what should be done to prevent similar accidents recurring in the future There was certainly a small percentage of cases in which further precautions were required The certifying surgeon was the man on the spot first after the accident and he was the man who saw the patient It was not mechanical accidents with which these medical men had to deal They had to deal with chemical and electrical accidents Who was better able to form an opinion about a man who had been gassed? The certifying surgeon constituted as it were, the sieve through which thousands of accidents passed, and the inspector judged on the reports whether a visit from him was necessary or not The substantial services rendered in this respect should not be abolished until there was something to put in their place It was remarkable that no private Member who had spoken had supported the proposal in the Bill

Mr BARTLEY DENNISS considered that the economy involved in the abolition of certifying surgeons was very mistaken This attempt to alter a state of affairs which had prevailed for 70 years was being made at a time when accidents were more frequent than they had been before the war Inexperience and fatigue were the causes of most of the accidents There were more dangerous trades at present in operation than before Yet it was proposed to cut off the certifying surgeon, and at a time when there were not enough factory inspectors

Mr WHITEHOUSE protested strongly against the abolition of certifying surgeons

Mr GOLDSTONE remarked that these medical men were a guarantee that accurate reports were sent in by the employers

Mr H SAMUEL said that he still thought that large numbers of the reports of certifying surgeons were valueless, and he certainly would not have proposed their abolition if he thought that they were useful The Home Office was retaining the certifying surgeons' work which dealt with certificates of fitness, dangerous trades, and industrial poisoning He agreed that there was something to be said for certifying surgeons still being used in special cases There was a desirability of having reports from medical men where it was a case of septic poisoning or of gassing or a case resulting from some deleterious chemical substance He had contemplated arranging for medical reports in these cases He had been impressed by the debate, and he was sure that much had been said under misapprehension He would give further consideration to suggestions which had been made He would put down an amendment for the Committee stage which he thought would meet the views of some honourable Members, and which while eliminating wasteful expenditure would endeavour to continue the work of the certifying surgeons where even in a limited number of cases it was likely to be useful to the factory inspector, and also in dangerous cases

The Bill was then read a second time

WEDNESDAY, JULY 5TH

German and Austrian Medical Men

Mr GEORGE FABER asked the Home Secretary how many German and Austrian medical practitioners, naturalised and enemy aliens respectively, there were at present in this country, and whether any, and if so how many, of either class were interned —Mr HERBERT SAMUEL replied This information is not available, and could not be obtained without very great labour The number of German and Austrian medical practitioners left in this country is small, as there was an arrangement for mutual repatriation at the beginning of the war

Appointments.

Successful applicants for vacancies Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office directed to the Sub Editor not later than 9 o clock on the Thursday morning of each week such information for gratuitous publication.*

HILL, P E Colonel A.M S T (Ret.) has been appointed by the Western Command Medical Officer in charge of the German Prisoners Working Camp at Orickhowell

McMAHON A. D M B B Ch. R.U I Temporary Tuberculosis Officer for Sunderland

MURRAY J J M.B B Ch Belf Dispensary Medical Officer Downpatrick.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index)

When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor

ALTON HANTS LORD MAYOR TRELOAR CRIPPLES HOSPITAL.—Assistant Resident Medical Officer

BEDFORD COUNTY HOSPITAL.—House Surgeon unmarried Salary as arranged with board &c.

BETHNAL GREEN INFIRMARY —Medical Superintendent &c Salary &c. approximately £763 per annum

BIRMINGHAM AND MIDLAND EYE HOSPITAL, Church-street —Resident Surgeon Salary £200 per annum with board &c

BIRMINGHAM UNIVERSITY —Lecturer in Physiological Department Salary £200 per annum

BOLINGBROKE HOSPITAL, Wandsworth Common S W —Resident Medical Officer and House Surgeon Salary £300 per annum and £200 per annum respectively with board &c

BOLTON INFIRMARY AND DISPENSARY —Female Third House Surgeon Salary £180 per annum with board &c.

who, under the instructions issued are liable to be summoned for medical re examination There is no ground for the suggestion that anything inconsistent with what I said on May 24th will be done It is very difficult to say what number will be called up, and there is no means of ascertaining it

Exemptions to Dentists

Mr PAGET asked the Under Secretary for War whether he had seen the resolutions passed by the borough of Cambridge deprecating the action of the military authorities in withdrawing dentists from the practice of their profession and putting them to do the work of ordinary soldiers, and what was the policy of the War Office in the matter —Mr TENNANT wrote in reply I have not seen the resolution to which the honourable Member refers Claims for the exemption of dental surgeons whose services the principal medical officer considers indispensable have been assented to conditionally on their services with the troops being continued In other cases dentists have recourse to the tribunals in the ordinary way A decision by the Central Tribunal in a recent case has been circulated to tribunals In this case the dentist was granted exemption conditionally on his remaining in his present occupation The following was added "The Central Tribunal, from evidence submitted to them are impressed with the danger of further reducing the number of registered dentists now in this country Whether any particular dentist should be granted exemption must obviously depend to some extent upon the requirements of the place in which he practises, but they are inclined to think that unless it be shown that his services are not required, he should be granted exemption Similar considerations apply to the mechanics on whom dentists depend for the efficient performance of their work

Treatment of Tuberculosis in Poor houses

Mr CURRIE asked the representative of the National Insurance Commissioners whether the practice which at one time caused dissatisfaction in Scotland of treating tuberculosis cases in poor houses was now entirely forbidden as regards both soldiers and civilians; and whether the public might rely upon no reversion to this practice being permitted —Mr CHARLES ROBERTS said in reply No such arrangement as is indicated in the question can be made by insurance committees under the National Insurance Acts If the honourable Member will furnish me with further information as to any specific case which he may have in mind, I shall be glad to make inquiry

Work of the Board of Control

Mr KING asked the Under Secretary for the Home Department whether the five Lunacy Commissioners now employed entirely on lunacy work were found sufficient for all the requirements of the Lunacy Acts seeing that 14 000 beds had now been removed from lunacy jurisdiction —Mr BRACE answered The work of the Board of Control has been carried out by the Commissioners working long hours, and at the expense of their usual vacation by the assistance given to them by one of the honorary Commissioners, and by special arrangement of their work of a temporary nature

Mr KING In any further reduction will it be observed that at least the legal members of that Commission or the Board of Control will not be reduced in their capabilities and numbers?—Mr BRACE I think that the honourable Member may depend upon the Home Office doing that

Non poisonous Dope in Aircraft Factories

In the course of the debate on the Home Office Estimates in Committee of Supply, Mr BRACE (Under Secretary for the Home Department) said The troublesome question of a non poisonous dope in aircraft factories is a matter on which the Home Office has been much disturbed We have had to answer questions in this House in regard to women and men whose lives have been taken because of their having to work this poisonous dope The dope question affects no only the Home Office but also and more particularly the Admiralty and the War Office I am glad to be able to say that as a result of communications between the Home Secretary and the Ministers of those two departments we at last see our way to having a non poisonous dope sufficient and effective for all purposes for aircraft whether for sea work or for work on land I am hoping that within a few weeks from now the poisonous dope which has been in use and has been so deadly to the workers will be a thing of the past The Home Office has been continually pressing for the best ventilation for greater precautions and for everything in the shape of precautionary measures that would make work upon poisonous dope less dangerous But we have felt all along that the real solution of the question was a non poisonous dope It has been a very difficult problem The three departments concerned have been working together and as a result I think the noble lord who brought forward this question (Lord Henry Cavendish Bentinck) may take it for certain that in but a very short time all this danger will be removed and the workers in our aircraft factories will be able to go along their employment with infinitely less danger to life and health than has hitherto been the case

MONDAY, JULY 3RD

Nervous Cases in the Navy

Answering Commander BELLAIRS who asked questions about the measures being taken to deal with cases of acute mental and nervous breakdown in the navy Mr MACNAMARA (Secretary to the Admiralty) wrote The treatment of all cases of mental and nervous breakdown is undertaken in the three large base naval hospitals at Chatham, Haslar and Plymouth A medical officer who has made a specialty of such cases is detailed to each hospital and he has so many beds allotted to him as is necessary The treatment adopted is not to collect these cases in one ward or one building but to separate them from each other, as far as possible treating them with other general cases of illness So far this method of treatment has been followed by favourable results, but the number of cases of this type from the Fleet is not sufficiently large to enable more than a probable estimate of its value to be formed as yet Later on it is hoped a detailed report of the results obtained will be of value

Time expired Men of the Royal Army Medical Corps

Mr WATT asked the Under Secretary for War whether he was aware that time expired men of the Royal Army Medical Corps on offering themselves for re-enlistment were being told that they could not be reinstated in that corps and were being relegated to rifle battalions, would he say whether this was done with the sanction and concurrence of his department, and why, in the interests of economy the training of such men was not utilised —Mr TENNANT answered It would be in accordance with the principle which has been frequently urged in this House that any single man in the Royal Army Medical Corps fit for general service should be transferred to the infantry to make way for the older married men who would rightly be given a preference as regards less exposed service Such transfers would not of course be made if they involved dislocation of the service from which the transfer was made

TUESDAY, JULY 4TH

Proposed Abolition of Certifying Surgeons

The House considered on second reading the Police &c. (Miscellaneous Provisions) Bill, one of the clauses of which proposes to abolish the system of reports on accidents in factories and workshops made by certifying surgeons

Mr HERBERT SAMUEL (Home Secretary) in moving the second reading said that he understood that there was considerable opposition to this clause affecting the position of certifying surgeons It was not proposed to abolish all the functions of these medical men They would still be called upon in respect of health work in connexion with children cases of industrial poisoning and the periodical examination of workers in dangerous trades The only point with which the clause dealt was the abolition of the reports which the certifying surgeons had hitherto made in reference to the deaths or injuries caused to workers by certain classes of accidents With regard to about one third of the whole number of accidents, the law required that the occupier or some other person in charge of the factory should report both to the factory inspector and the certifying surgeon The latter made a report stating the nature of the accident and for these reports a sum of £12 500 per annum was paid in fees The only duty of the certifying surgeon in this regard was to examine the workman and to certify that he had sustained such and such injuries He had nothing whatever to do with the cause of the accident or how its recurrence could be prevented What the Home Office really needed in this connexion were not men with medical knowledge but rather men with mechanical knowledge These reports made by certifying surgeons were found in practice not to save the factory inspector any work at all but rather to increase the clerical work and to be a hindrance rather than a help During the course of the year more than 50 000 of these reports were made by certifying surgeons and nearly always they were mere duplicates of the report of the occupier of the factory He would not dream of acquiescing in any change in the law which would weaken the safeguards of the worker On the contrary he held they must do everything possible to make industry more safe But the point was that they did not want doctors but more factory inspectors with technical knowledge A Special Committee which had sat in 1911 on this subject had unanimously reported that these reports were useless duplicates and [illegible] should be abolished He had received no [illegible] against this proposal from the representatives of the [illegible] labour, except from some local branches of the [illegible] The Transport Workers [illegible] [illegible] expressed themselves [illegible] [illegible] opposition came from the [illegible] [illegible] highly organised profession [illegible] [illegible] [illegible] [illegible] House of Commons [illegible] [illegible] [illegible] Bill deal only [illegible] [illegible]

Sir H CRAIK [illegible] [illegible]

Mr SAMUEL No, it does not apply only for the period of the war It applies permanently Continuing the right honourable gentleman said that the Retrenchment Committee had also reported in favour of the abolition of these reports He did not know how any Member of the House could support their retention They were not worth the expenditure that they incurred and he could not continue to ask the Treasury for the £12,500 per annum which they cost in the existing circumstances

Sir H CRAIK said he was unwilling to delay a Bill of this kind which was an emergency measure But he was afraid the arguments of the Home Secretary had not persuaded him that this proposal was justified He would be the last to oppose any serious proposal for retrenchment, but really they ought to cultivate a sense of proportion He did not think that the money involved was great enough to induce certifying surgeons to raise an opposition from one end of the country to the other against this proposal He believed that there were only about 100 surgeons who had anything like considerable pay out of the annual sum of £12,500 About 1900 out of the 2000 surgeons only received mere pittances in fees for the work they did These were not salaried officers Certain pay was given for doing certain work. He did not think it was fair to raise a question which had been the subject of dispute for years in an Emergency Bill In 1901 and 1905 legislation of a similar kind was attempted and had to be abandoned because of the opposition of the working classes There was not a single representative of the medical profession on the Committee to which the Home Secretary had referred nor was a single medical witness called before that Committee

Mr SAMUEL Oh, yes

Sir H CRAIK said that the certifying surgeons had distinctly informed him that they were not asked to give evidence on the subject The certifying surgeons considered the professional aspect of the matter as more important than the monetary consideration They were intimately acquainted with the workers and the accidents to which they were liable, and it was because they wanted to do their best for the workers and had deep sympathy with them in their work that they desired that this part of their work should not be taken away from them He hoped that the Home Secretary would withdraw the obnoxious clause on the Committee stage

Mr TOOTILL said that it was very desirable to effect retrenchment in the Departments of the State, but this should not be done where it was likely to interfere with the protection and safeguards which ought to be strengthened rather than weakened, in reference to the working classes of the country In taking up this position he was not animated at all by any kind of interest in the certifying surgeons

Sir P MAGNUS said he did not desire to oppose the second reading of the Bill, and he would reserve his additional arguments in favour of the retention of these duties by the certifying surgeons until the Committee stage

Mr WALSH said he doubted whether trade unionists all over the country had been aware that this clause was to be forced. For his part he would see that they were put into possession of the facts before the Committee stage

Mr BRACE (Under Secretary to the Home Department) said he was very surprised at the heat which had been developed in the debate and at the suspicion under which the Home Office lay because of this clause in the Bill They were introducing this proposal because they held that it was an essential and necessary reform in war time or any other time In 1914 the total number of accidents notified amounted to 159,413 and the number which were also notified by the certifying surgeons was 52,563 or less than one third of the total accidents He had examined hundreds of these reports, and in most cases he found them exactly the same as the report which the factory inspector sent in based on information supplied by the employer If he thought for one moment that the abolition of these reports would introduce danger to the health of life or limb of the factory workers he would not bring forward this proposal What were needed were more factory inspectors with technical knowledge and if they were to have a higher standard of medical inspection the Home Office would prefer to have full time medical inspectors rather than this system of certifying surgeons which at present existed

Mr ANEURIN WILLIAMS took objection to the proposal to abolish certifying surgeons The certifying surgeon had important functions to perform and important information to obtain He often reported on what should be done to prevent similar accidents recurring in the future There was certainly a small percentage of cases in which further precautions were required The certifying surgeon was the man on the spot first after the accident and he was the man who saw the patient It was not mechanical accidents with which these medical men had to deal They had to deal with chemical and electrical accidents Who was better able to form an opinion about a man who had been gassed? The certifying surgeon constituted as it were, the sieve through which thousands of accidents passed and the inspector judged on the reports whether a visit from him was necessary or not The substantial services rendered in this respect should not be abolished until there was something to put in their place It was remarkable that no private Member who had spoken had supported the proposal in the Bill

Mr BARTLEY DENNISS considered that the economy involved in the abolition of certifying surgeons was very mistaken This attempt to alter a state of affairs which had prevailed for 70 years was being made at a time when accidents were more frequent than they had been before the war Inexperience and fatigue were the causes of most of the accidents There were more dangerous trades at present in operation than before Yet it was proposed to cut off the certifying surgeon, and at a time when there were not enough factory inspectors

Mr WHITEHOUSE protested strongly against the abolition of certifying surgeons

Mr GOLDSTONE remarked that these medical men were a guarantee that accurate reports were sent in by the employers

Mr H SAMUEL said that he still thought that large numbers of the reports of certifying surgeons were valueless, and he certainly would not have proposed their abolition if he thought that they were useful The Home Office was retaining the certifying surgeons' work which dealt with certificates of fitness, dangerous trades, and industrial poisoning He agreed that there was something to be said for certifying surgeons still being used in special cases There was a desirability of having reports from medical men where it was a case of septic poisoning or of gassing or a case resulting from some deleterious chemical substance He had contemplated arranging for medical reports in these cases He had been impressed by the debate, and he was sure that much had been said under misapprehension He would give further consideration to suggestions which had been made He would put down an amendment for the Committee stage which he thought would meet the views of some honourable Members and which while eliminating wasteful expenditure would endeavour to continue the work of the certifying surgeons where even in a limited number of cases it was likely to be useful to the factory inspector and also in dangerous cases

The Bill was then read a second time

WEDNESDAY JULY 5TH

German and Austrian Medical Men

Mr GEORGE FABER asked the Home Secretary how many German and Austrian medical practitioners, naturalised and enemy aliens respectively, there were at present in this country, and whether any and if so how many of either class were interned —Mr HERBERT SAMUEL replied This information is not available and could not be obtained without very great labour The number of German and Austrian medical practitioners left in this country is small, as there was an arrangement for mutual repatriation at the beginning of the war

Appointments.

Successful applicants for vacancies Secretaries of Public Institutions and others possessing information suitable for this column are invited to forward to THE LANCET *Office directed to the Sub-Editor not later than 9 o clock on the Thursday morning of each week, such information for gratuitous publication.*

HILL P E Colonel A M S T (Ret) has been appointed by the Western Command Medical Officer in charge of the German Prisoners Working Camp at Crickhowell

McMAHON A D M B B Ch. R U I Temporary Tuberculosis Officer for Sunderland

MURRAY J J M.B B Ch Belf Dispensary Medical Officer Downpatrick.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index)

When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor

ALTON HANTS LORD MAYOR TRELOAR CRIPPLES HOSPITAL—Assistant Resident Medical Officer

BEDFORD COUNTY HOSPITAL—House Surgeon unmarried. Salary as arranged with board &c.

BETHNAL GREEN INFIRMARY —Medical Superintendent &c Salary &c approximately £763 per annum

BIRMINGHAM AND MIDLAND EYE HOSPITAL, Church-street —Resident Surgeon Salary £200 per annum with board &c

BIRMINGHAM UNIVERSITY —Lecturer in Physiological Department Salary £200 per annum

BOLINGBROKE HOSPITAL, Wandsworth Common S W —Resident Medical Officer and House Surgeon. Salary £300 per annum and £200 per annum respectively with board, &c.

BOLTON INFIRMARY AND DISPENSARY —Female Third House Surgeon Salary £160 per annum with board &c.

who, under the instructions issued are liable to be summoned for medical re examination There is no ground for the suggestion that anything inconsistent with what I said on May 24th will be done It is very difficult to say what number will be called up, and there is no means of ascertaining it

Exemptions to Dentists

Mr PAGET asked the Under Secretary for War whether he had seen the resolutions passed by the borough of Cambridge deprecating the action of the military authorities in withdrawing dentists from the practice of their profession and putting them to do the work of ordinary soldiers, and what was the policy of the War Office in the matter —Mr TENNANT wrote in reply I have not seen the resolution to which the honourable Member refers Claims for the exemption of dental surgeons whose services the principal medical officer considers indispensable have been assented to conditionally on their services with the troops being continued In other cases dentists have recourse to the tribunals in the ordinary way A decision by the Central Tribunal in a recent case has been circulated to tribunals In this case the dentist was granted exemption conditionally on his remaining in his present occupation The following was added "The Central Tribunal, from evidence submitted to them, are impressed with the danger of further reducing the number of registered dentists now in this country Whether any particular dentist should be granted exemption must obviously depend to some extent upon the requirements of the place in which he practises, but they are inclined to think that unless it be shown that his services are not required, he should be granted exemption Similar considerations apply to the mechanics on whom dentists depend for the efficient performance of their work"

Treatment of Tuberculosis in Poor houses

Mr CURRIE asked the representative of the National Insurance Commissioners whether the practice which at one time caused dissatisfaction in Scotland of treating tuberculosis cases in poor houses was now entirely forbidden as regards both soldiers and civilians; and whether the public might rely upon no reversion to this practice being permitted —Mr CHARLES ROBERTS said in reply No such arrangement as is indicated in the question can be made by insurance committees under the National Insurance Acts If the honourable Member will furnish me with further information as to any specific case which he may have in mind, I shall be glad to make inquiry

Work of the Board of Control

Mr KING asked the Under Secretary for the Home Department whether the five Lunacy Commissioners now employed entirely on lunacy work were found sufficient for all the requirements of the Lunacy Acts seeing that 14 000 beds had now been removed from lunacy jurisdiction —Mr BRACE answered The work of the Board of Control has been carried out by the Commissioners working long hours, and at the expense of their usual vacation by the assistance given to them by one of the honorary Commissioners and by special arrangement of their work of a temporary nature

Mr KING In any further reduction will it be observed that at least the legal members of that Commission or the Board of Control will not be reduced in their capabilities and numbers?—Mr BRACE I think that the honourable Member may depend upon the Home Office doing that

Non poisonous Dope in Aircraft Factories

In the course of the debate on the Home Office Estimates in Committee of Supply, Mr BRACE (Under Secretary for the Home Department) said The troublesome question of a non poisonous dope in aircraft factories is a matter on which the Home Office has been much disturbed We have had to answer questions in this House in regard to women and men whose lives have been taken because of their having to work this poisonous dope The dope question affects not only the Home Office but also and more particularly the Admiralty and the War Office I am glad to be able to say that as a result of communications between the Home Secretary and the Ministers of those two departments we a[illegible] see our way to having a non poisonous dope sufficient and effective for all purposes for aircraft whether for sea work or for work on land I am hoping that within a few weeks from now the poisonous dope which has been in use and has been so deadly to the workers will be a thing of the past The Home Office has been continually pressing for the best ventilation for greater precautions and for everything in the shape of precautionary measures that would make work upon poisonous dope less dangerous But we have felt all along [illegible] real solution of the question was a non poisonous dope [illegible] has been a very difficult problem The three departments concerned have been working together and as a result I think the noble lord who brought forward this question (Lord Henry Cavendish Bentinck) may take it for certain [illegible] within a very short time all this danger will be removed and the workers in our aircraft factories will be able to go along [illegible] employment with infinitely less danger to life and health than has hitherto been the case

MONDAY, JULY 3RD

Nervous Cases in the Navy

Answering Commander BELLAIRS who asked questions about the measures being taken to deal with cases of acute mental and nervous breakdown in the navy Mr MACNAMARA (Secretary to the Admiralty) wrote The treatment of all cases of mental and nervous breakdown is undertaken in the three large base naval hospitals at Chatham Haslar and Plymouth A medical officer who has made a specialty of such cases is detailed to each hospital and he has so many beds allotted to him as is necessary The treatment adopted is not to collect these cases in one ward or one building but to separate them from each other as far as possible treating them with other general cases of illness So far this method of treatment has been followed by favourable results, but the number of cases of this type from the Fleet is not sufficiently large to enable more than a probable estimate of its value to be formed as yet Later on it is hoped a detailed report of the results obtained will be of value

Time expired Men of the Royal Army Medical Corps

Mr WATT asked the Under Secretary for War whether he was aware that time expired men of the Royal Army Medical Corps on offering themselves for re-enlistment were being told that they could not be reinstated in that corps, and were being relegated to rifle battalions, would he say whether this was done with the sanction and concurrence of his department, and why, in the interests of economy, the training of such men was not utilised —Mr TENNANT answered It would be in accordance with the principle which has been frequently urged in this House that any single man in the Royal Army Medical Corps fit for general service should be transferred to the infantry to make way for the older married men who would rightly be given a preference as regards less exposed service Such transfers would not of course be made if they involved dislocation of the service from which the transfer was made

TUESDAY, JULY 4TH

Proposed Abolition of Certifying Surgeons

The House considered on second reading the Police Ac (Miscellaneous Provisions) Bill, one of the clauses of which proposes to abolish the system of reports on accidents in factories and workshops made by certifying surgeons

Mr HERBERT SAMUEL (Home Secretary) in moving the second reading said that he understood that there was considerable opposition to this clause affecting the position of certifying surgeons It was not proposed to abolish all the functions of these medical men They would still be called upon in respect of health work in connexion with children cases of industrial poisoning and the periodical examination of workers in dangerous trades The only point with which the clause dealt was the abolition of the reports which the certifying surgeons had hitherto made in reference to the deaths or injuries caused to workers by certain classes of accidents With regard to about one third of the whole number of accidents the law required that the occupier or some other person in charge of the factory should report both to the factory inspector and the certifying surgeon The latter made a report stating the nature of the accident and for these reports a sum of £12 500 per annum was paid in fees The only duty of the certifying surgeon in this regard was to examine the workman and to certify that he had sustained such and such injuries He had nothing whatever to do with the cause of the accident or how its recurrence could be prevented What the Home Office really needed in this connexion were not men with medical knowledge but rather men with mechanical knowledge These reports made by certifying surgeons were found in practice not to save the factory inspector any work at all but rather to increase the clerical work and to be a hindrance rather than a help During the course of the year more than 50 000 of these reports were made by certifying surgeons and nearly always they were mere duplicates of the report of the occupier of the factory He would not dream of acquiescing in any change in the law which would weaken the safeguards of the worker On the contrary he held they must [illegible] everything possible to make industry more safe But the point was that they did not want doctors but more factory inspectors with technical knowledge A Special Committee which had sat in 1911 on this subject had unanimously reported [illegible] these reports were useless duplicates [illegible] advantage be abolished He had received no representations against this proposal from the representatives of [illegible] labour, except from some local bodies [illegible] The Trades [illegible] expressed themselves [illegible] [illegible] highly [illegible] professional [illegible] approach the House of Commons [illegible] [illegible]

Sir H CRAIK Does [illegible] he say?

Mr SAMUEL No, it does not apply only for the period of the war It applies permanently Continuing the right honourable gentleman said that the Retrenchment Committee had also reported in favour of the abolition of these reports He did not know how any Member of the House could support their retention They were not worth the expenditure that they incurred, and he could not continue to ask the Treasury for the £12,500 per annum which they cost in the existing circumstances

Sir H CRAIK said he was unwilling to delay a Bill of this kind which was an emergency measure But he was afraid the arguments of the Home Secretary had not persuaded him that this proposal was justified He would be the last to oppose any serious proposal for retrenchment, but really they ought to cultivate a sense of proportion He did not think that the money involved was great enough to induce certifying surgeons to raise an opposition from one end of the country to the other against this proposal He believed that there were only about 100 surgeons who had anything like considerable pay out of the annual sum of £12,500 About 1900 out of the 2000 surgeons only received mere pittances in fees for the work they did These were not salaried officers Certain pay was given for doing certain work He did not think it was fair to raise a question which had been the subject of dispute for years in an Emergency Bill In 1901 and 1905 legislation of a similar kind was attempted and had to be abandoned because of the opposition of the working classes There was not a single representative of the medical profession on the Committee to which the Home Secretary had referred, nor was a single medical witness called before that Committee

Mr SAMUEL Oh, yes

Sir H CRAIK said that the certifying surgeons had distinctly informed him that they were not asked to give evidence on the subject The certifying surgeons considered the professional aspect of the matter as more important than the monetary consideration They were intimately acquainted with the workers and the accidents to which they were liable, and it was because they wanted to do their best for the workers and had deep sympathy with them in their work that they desired that this part of their work should not be taken away from them He hoped that the Home Secretary would withdraw the obnoxious clause on the Committee stage

Mr TOOTILL said that it was very desirable to effect retrenchment in the Departments of the State, but this should not be done where it was likely to interfere with the protection and safeguards, which ought to be strengthened rather than weakened, in reference to the working classes of the country In taking up this position he was not animated at all by any kind of interest in the certifying surgeons

Sir P MAGNUS said he did not desire to oppose the second reading of the Bill, and he would reserve his additional arguments in favour of the retention of these duties by the certifying surgeons until the Committee stage

Mr WALSH said he doubted whether trade unionists all over the country had been aware that this clause was to be forced. For his part he would see that they were put into possession of the facts before the Committee stage

Mr BRACE (Under Secretary to the Home Department) said he was very surprised at the heat which had been developed in the debate and at the suspicion under which the Home Office lay because of this clause in the Bill They were introducing this proposal because they held that it was an essential and necessary reform in war time or any other time In 1914 the total number of accidents notified amounted to 159,413 and the number which were also notified by the certifying surgeons was 52,563 or less than one third of the total accidents He had examined hundreds of these reports, and in most cases he found them exactly the same as the report which the factory inspector sent in based on information supplied by the employer If he thought for one moment that the abolition of these reports would introduce danger to the health of life or limb of the factory workers he would not bring forward this proposal What were needed were more factory inspectors with technical knowledge, and if they were to have a higher standard of medical inspection the Home Office would prefer to have full time medical inspectors rather than this system of certifying surgeons which at present existed

Mr ANEURIN WILLIAMS took objection to the proposal to abolish certifying surgeons The certifying surgeon had important functions to perform and important information to obtain He often reported on what should be done to prevent similar accidents recurring in the future There was certainly a small percentage of cases in which further precautions were required The certifying surgeon was the man on the spot first after the accident and he was the man who saw the patient It was not mechanical accidents with which these medical men had to deal They had to deal with chemical and electrical accidents Who was better able to form an opinion about a man who had been gassed? The certifying surgeon constituted as it were, the sieve through which thousands of accidents passed, and the inspector judged on the reports whether a visit from him was necessary or not The substantial services rendered in this respect should not be abolished until there was something to put in their place It was remarkable that no private Member who had spoken had supported the proposal in the Bill

Mr BARTLEY DENNISS considered that the economy involved in the abolition of certifying surgeons was very mistaken This attempt to alter a state of affairs which had prevailed for 70 years was being made at a time when accidents were more frequent than they had been before the war Inexperience and fatigue were the causes of most of the accidents There were more dangerous trades at present in operation than before Yet it was proposed to cut off the certifying surgeon, and at a time when there were not enough factory inspectors

Mr WHITEHOUSE protested strongly against the abolition of certifying surgeons

Mr GOLDSTONE remarked that these medical men were a guarantee that accurate reports were sent in by the employers

Mr H SAMUEL said that he still thought that large numbers of the reports of certifying surgeons were valueless, and he certainly would not have proposed their abolition if he thought that they were useful The Home Office was retaining the certifying surgeons' work which dealt with certificates of fitness, dangerous trades, and industrial poisoning He agreed that there was something to be said for certifying surgeons still being used in special cases There was a desirability of having reports from medical men where it was a case of septic poisoning or of gassing or a case resulting from some deleterious chemical substance He had contemplated arranging for medical reports in these cases He had been impressed by the debate, and he was sure that much had been said under misapprehension He would give further consideration to suggestions which had been made He would put down an amendment for the Committee stage which he thought would meet the views of some honourable Members, and which while eliminating wasteful expenditure would endeavour to continue the work of the certifying surgeons where even in a limited number of cases it was likely to be useful to the factory inspector, and also in dangerous cases

The Bill was then read a second time

WEDNESDAY, JULY 5TH

German and Austrian Medical Men

Mr GEORGE FABER asked the Home Secretary how many German and Austrian medical practitioners, naturalised and enemy aliens respectively, there were at present in this country, and whether any, and if so how many, of either class were interned —Mr HERBERT SAMUEL replied This information is not available, and could not be obtained without very great labour The number of German and Austrian medical practitioners left in this country is small, as there was an arrangement for mutual repatriation at the beginning of the war

Appointments.

Successful applicants for vacancies Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office directed to the Sub-Editor not later than 9 o clock on the Thursday morning of each week such information for gratuitous publication*

HILL, P E Colonel A M S T (Ret) has been appointed by the Western Command Medical Officer in charge of the German Prisoners Working Camp at Crickhowell

McMAHON A. D M B B Ch R.U I Temporary Tuberculosis Officer for Sunderland

MURRAY J J M.B B Ch Belf Dispensary Medical Officer Downpatrick

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index)

When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor

ALTON HANTS LORD MAYOR TRELOAR CRIPPLES HOSPITAL.—Assistant Resident Medical Officer

BEDFORD COUNTY HOSPITAL.—House Surgeon unmarried Salary as arranged with board &c.

BETHNAL GREEN INFIRMARY —Medical Superintendent &c Salary &c. approximately £763 per annum

BIRMINGHAM AND MIDLAND EYE HOSPITAL, Church-street.—Resident Surgeon Salary £200 per annum with board &c.

BIRMINGHAM UNIVERSITY —Lecturer in Physiological Department Salary £200 per annum.

BOLINGBROKE HOSPITAL, Wandsworth Common S W —Resident Medical Officer and House Surgeon Salary £300 per annum and £200 per annum respectively with board &c.

BOLTON INFIRMARY AND DISPENSARY —Female Third House Surgeon Salary £180 per annum with board &c.

who under the instructions issued are liable to be summoned for medical re examination There is no ground for the suggestion that anything inconsistent with what I said on May 24th will be done It is very difficult to say what number will be called up, and there is no means of ascertaining it

Exemptions to Dentists

Mr PAGET asked the Under Secretary for War whether he had seen the resolutions passed by the borough of Cambridge deprecating the action of the military authorities in withdrawing dentists from the practice of their profession and putting them to do the work of ordinary soldiers, and what was the policy of the War Office in the matter —Mr TENNANT wrote in reply I have not seen the resolution to which the honourable Member refers Claims for the exemption of dental surgeons whose services the principal medical officer considers indispensable have been assented to conditionally on their services with the troops being continued In other cases dentists have recourse to the tribunals in the ordinary way A decision by the Central Tribunal in a recent case has been circulated to tribunals In this case the dentist was granted exemption conditionally on his remaining in his present occupation The following was added "The Central Tribunal, from evidence submitted to them are impressed with the danger of further reducing the number of registered dentists now in this country Whether any particular dentist should be granted exemption must obviously depend to some extent upon the requirements of the place in which he practises, but they are inclined to think that unless it be shown that his services are not required, he should be granted exemption Similar considerations apply to the mechanics on whom dentists depend for the efficient performance of their work"

Treatment of Tuberculosis in Poor houses

Mr CURRIE asked the representative of the National Insurance Commissioners whether the practice which at one time caused dissatisfaction in Scotland of treating tuberculosis cases in poor houses was now entirely forbidden as regards both soldiers and civilians; and whether the public might rely upon no reversion to this practice being permitted —Mr CHARLES ROBERTS said in reply No such arrangement as is indicated in the question can be made by insurance committees under the National Insurance Acts If the honourable Member will furnish me with further information as to any specific case which he may have in mind, I shall be glad to make inquiry

Work of the Board of Control

Mr KING asked the Under Secretary for the Home Department whether the five Lunacy Commissioners now employed entirely on lunacy work were found sufficient for all the requirements of the Lunacy Acts seeing that 14 000 beds had now been removed from lunacy jurisdiction —Mr BRACE answered The work of the Board of Control has been carried out by the Commissioners working long hours, and at the expense of their usual vacation by the assistance given to them by one of the honorary Commissioners and by special arrangement of their work of a temporary nature

Mr KING In any further reduction will it be observed that at least the legal members of that Commission or the Board of Control will not be reduced in their capabilities and numbers?—Mr BRACE I think that the honourable Member may depend upon the Home Office doing that

Non poisonous Dope in Aircraft Factories

In the course of the debate on the Home Office Estimates in Committee of Supply, Mr BRACE (Under Secretary for the Home Department) said The troublesome question of a non poisonous dope in aircraft factories is a matter on which the Home Office has been much disturbed We have had to answer questions in this House in regard to women and men whose lives have been taken because of their having to work this poisonous dope The dope question affects not only the Home Office, but also and more particularly the Admiralty and the War Office I am glad to be able to say that as a result of communications between the Home Secretary and the Ministers of those two departments we at last see our way to having a non poisonous dope sufficient and effective for all purposes for aircraft whether for sea work or for work on land I am hoping that within a few weeks from now the poisonous dope which has been in use and has been so deadly to the workers will be a thing of the past The Home Office has been continually pressing for the best ventilation for greater precautions and for everything in the shape of precautionary measures that would make work upon poisonous dope less dangerous But we have felt all along that the real solution of the question was a non poisonous dope It has been a very difficult problem The three departments concerned have been working together and as a result I think the noble lord who brought forward this question (Lord Henry Cavendish Bentinck) may take it for certain that within a very short time all this danger will be removed and the workers in our aircraft factories will be able to go along in their employment with infinitely less danger to life and health than has hitherto been the case

MONDAY, JULY 3RD

Nervous Cases in the Navy

Answering Commander BELLAIRS who asked questions about the measures being taken to deal with cases of accidental mental and nervous breakdown in the navy, Mr MACNAMARA (Secretary to the Admiralty) wrote The treatment of all cases of mental and nervous breakdown is undertaken in the three large base naval hospitals at Chatham, Haslar and Plymouth A medical officer who has made a specialty of such cases is detailed to each hospital and he has so many beds allotted to him as is necessary The treatment adopted is not to collect these cases in one ward or one building but to separate them from each other, as far as possible treating them with other general cases of illness So far this method of treatment has been followed by favourable results but the number of cases of this type from the Fleet is not sufficiently large to enable more than a probable estimate of its value to be formed as yet Later on it is hoped a detailed report of the results obtained will be of value

Time-expired Men of the Royal Army Medical Corps

Mr WATT asked the Under Secretary for War whether he was aware that time expired men of the Royal Army Medical Corps on offering themselves for re-enlistment were being told that they could not be reinstated in that corps and were being relegated to rifle battalions, would he say whether this was done with the sanction and concurrence of his department, and why, in the interests of economy, the training of such men was not utilised —Mr TENNANT answered It would be in accordance with the principle which has been frequently urged in this House that any single man in the Royal Army Medical Corps fit for general service should be transferred to the infantry to make way for the older married men, who would rightly be given a preference as regards less exposed service Such transfers would not of course be made if they involved dislocation of the service from which the transfer was made

TUESDAY, JULY 4TH

Proposed Abolition of Certifying Surgeons

The House considered on second reading the Police &c. (Miscellaneous Provisions) Bill one of the clauses of which proposes to abolish the system of reports on accidents in factories and workshops made by certifying surgeons

Mr HERBERT SAMUEL (Home Secretary) in moving the second reading said that he understood that there was considerable opposition to this clause affecting the position of certifying surgeons It was not proposed to abolish all the functions of these medical men They would still be called upon in respect of health work in connexion with children cases of industrial poisoning, and the periodical examination of workers in dangerous trades The only point with which the clause dealt was the abolition of the reports which the certifying surgeons had hitherto made in reference to the deaths or injuries caused to workers by certain classes of accidents With regard to about one third of the whole number of accidents the law required that the occupier or some other person in charge of the factory should report both to the factory inspector and the certifying surgeon The latter made a report stating the nature of the accident and for these reports a sum of £12 500 per annum was paid in fees The only duty of the certifying surgeon in this regard was to examine the workman and to certify that he had sustained such and such injuries He had nothing whatever to do with the cause of the accident or how its recurrence could be prevented What the Home Office really needed in this connexion were not men with medical knowledge but rather men with mechanical knowledge These reports made by certifying surgeons were found in practice not to save the factory inspector any work at all but rather to increase the clerical work and to be a hindrance rather than a help During the course of the year more than 50 000 of these reports were made by certifying surgeons and nearly always they were mere duplicates of the report of the occupier of the factory He would not dream of acquiescing in any change in the law which would weaken the safeguards of the worker On the contrary he held they must do everything possible to make industry more safe But the point was that they did not want doctors but more factory inspectors with technical knowledge A Special Committee [illegible] sat in 1911 on this subject had unanimously reported [illegible] these reports were useless duplicates [illegible] advantage be abolished He had [illegible] against this proposal from the representatives [illegible] labour except from some local [illegible] The [illegible] expressed themselves [illegible] came from the [illegible] highly organised profession [illegible] the House of Commons [illegible]

Sir H CRAIK [illegible]

Mr SAMUEL No it does not apply only for the period of the war It applies permanently Continuing the right honourable gentleman said that the Retrenchment Committee had also reported in favour of the abolition of these reports He did not know how any Member of the House could support their retention They were not worth the expenditure that they incurred and he could not continue to ask the Treasury for the £12,500 per annum which they cost in the existing circumstances

Sir H CRAIK said he was unwilling to delay a Bill of this kind which was an emergency measure But he was afraid the arguments of the Home Secretary had not persuaded him that this proposal was justified He would be the last to oppose any serious proposal for retrenchment but really they ought to cultivate a sense of proportion He did not think that the money involved was great enough to induce certifying surgeons to raise an opposition from one end of the country to the other against this proposal He believed that there were only about 100 surgeons who had anything like considerable pay out of the annual sum of £12,500 About 1900 out of the 2000 surgeons only received mere pittances in fees for the work they did These were not salaried officers Certain pay was given for doing certain work. He did not think it was fair to raise a question which had been the subject of dispute for years in an Emergency Bill In 1901 and 1905 legislation of a similar kind was attempted and had to be abandoned because of the opposition of the working classes There was not a single representative of the medical profession on the Committee to which the Home Secretary had referred nor was a single medical witness called before that Committee

Mr SAMUEL Oh, yes

Sir H. CRAIK said that the certifying surgeons had distinctly informed him that they were not asked to give evidence on the subject The certifying surgeons considered the professional aspect of the matter as more important than the monetary consideration They were intimately acquainted with the workers and the accidents to which they were liable and it was because they wanted to do their best for the workers and had deep sympathy with them in their work that they desired that this part of their work should not be taken away from them He hoped that the Home Secretary would withdraw the obnoxious clause on the Committee stage

Mr TOOTHILL said that it was very desirable to effect retrenchment in the Departments of the State, but this should not be done where it was likely to interfere with the protection and safeguards, which ought to be strengthened rather than weakened, in reference to the working classes of the country In taking up this position he was not animated at all by any kind of interest in the certifying surgeons

Sir P MAGNUS said he did not desire to oppose the second reading of the Bill, and he would reserve his additional arguments in favour of the retention of these duties by the certifying surgeons until the Committee stage

Mr WALSH said he doubted whether trade unionists all over the country had been aware that this clause was to be forced. For his part he would see that they were put into possession of the facts before the Committee stage

Mr BRACE (Under Secretary to the Home Department) said he was very surprised at the heat which had been developed in the debate and at the suspicion under which the Home Office lay because of this clause in the Bill They were introducing this proposal because they held that it was an essential and necessary reform in war time or any other time In 1914 the total number of accidents notified amounted to 159 413 and the number which were also notified by the certifying surgeons was 52,563 or less than one-third of the total accidents He had examined hundreds of these reports and in most cases he found them exactly the same as the report which the factory inspector sent in based on information supplied by the employer If he thought for one moment that the abolition of these reports would introduce danger to the health of life or limb of the factory workers he would not bring forward this proposal What were needed were more factory inspectors with technical knowledge and if they were to have a higher standard of medical inspection the Home Office would prefer to have full time medical inspectors rather than this system of certifying surgeons which at present existed

Mr ANEURIN WILLIAMS took objection to the proposal to abolish certifying surgeons The certifying surgeon had important functions to perform and important information to obtain He often reported on what should be done to prevent similar accidents recurring in the future There was certainly a small percentage of cases in which further precautions were required The certifying surgeon was the man on the spot first after the accident and he was the man who saw the patient It was not mechanical accidents with which these medical men had to deal They had to deal with chemical and electrical accidents Who was better able to form an opinion about a man who had been gassed? The certifying surgeon constituted as it were, the sieve through which thousands of accidents passed and the inspector judged on the reports whether a visit from him was necessary or not The substantial services rendered in this respect should not be abolished until there was something to put in their place It was remarkable that no private Member who had spoken had supported the proposal in the Bill

Mr BAPTLEY DENNISS considered that the economy involved in the abolition of certifying surgeons was very mistaken This attempt to alter a state of affairs which had prevailed for 70 years was being made at a time when accidents were more frequent than they had been before the war Inexperience and fatigue were the causes of most of the accidents There were more dangerous trades at present in operation than before Yet it was proposed to cut off the certifying surgeon, and at a time when there were not enough factory inspectors

Mr WHITEHOUSE protested strongly against the abolition of certifying surgeons

Mr GOLDSTONE remarked that these medical men were a guarantee that accurate reports were sent in by the employers

Mr H SAMUEL said that he still thought that large numbers of the reports of certifying surgeons were valueless and he certainly would not have proposed their abolition if he thought that they were useful The Home Office was retaining the certifying surgeons work which dealt with certificates of fitness dangerous trades and industrial poisoning He agreed that there was something to be said for certifying surgeons still being used in special cases There was a desirability of having reports from medical men where it was a case of septic poisoning or of gassing or a case resulting from some deleterious chemical substance He had contemplated arranging for medical reports in these cases He had been impressed by the debate, and he was sure that much had been said under misapprehension He would give further consideration to suggestions which had been made He would put down an amendment for the Committee stage which he thought would meet the views of some honourable Members and which while eliminating wasteful expenditure would endeavour to continue the work of the certifying surgeons where even in a limited number of cases it was likely to be useful to the factory inspector and also in dangerous cases

The Bill was then read a second time

WEDNESDAY JULY 5TH

German and Austrian Medical Men

Mr GEORGE FABER asked the Home Secretary how many German and Austrian medical practitioners, naturalised and enemy aliens respectively, there were at present in this country, and whether any, and if so how many of either class were interned —Mr HERBERT SAMUEL replied This information is not available, and could not be obtained without very great labour The number of German and Austrian medical practitioners left in this country is small, as there was an arrangement for mutual repatriation at the beginning of the war

Appointments.

Successful applicants for vacancies Secretaries of Public Institutions and others possessing information suitable for this column are invited to forward to THE LANCET *Office directed to the Sub-Editor not later than 9 o clock on the Thursday morning of each week such information for gratuitous publication.*

HILL P E Colonel A.M S.T (Ret) has been appointed by the Western Command Medical Officer in charge of the German Prisoners Working Camp at Crickhowell

McMAHON A. D M.B B Ch. R.U.I. Temporary Tuberculosis Officer for Sunderland

MURRAY J J M.B B Ch Belf Dispensary Medical Officer Downpatrick

Vacancies.

For further information regarding each vacancy, reference should be made to the advertisement (see Index)

When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor

ALTON HANTS LORD MAYOR TRELOAR CRIPPLES' HOSPITAL.—Assistant Resident Medical Officer

BEDFORD COUNTY HOSPITAL.—House Surgeon unmarried. Salary as arranged with board &c.

BETHNAL GREEN INFIRMARY —Medical Superintendent &c Salary &c. approximately £165 per annum

BIRMINGHAM AND MIDLAND EYE HOSPITAL, Church-street.—Resident Surgeon Salary £200 per annum, with board &c

BIRMINGHAM UNIVERSITY —Lecturer in Physiological Department. Salary £200 per annum

BOLINGBROKE HOSPITAL, Wandsworth Common S W —Resident Medical Officer and House Surgeon. Salary £350 per annum and £200 per annum respectively with board, &c.

BOLTON INFIRMARY AND DISPENSARY —Female Third House Surgeon Salary £180 per annum with board &c.

who under the instructions issued are liable to be summoned for medical re examination There is no ground for the suggestion that anything inconsistent with what I said on May 24th will be done It is very difficult to say what number will be called up, and there is no means of ascertaining it

Exemptions to Dentists

Mr PAGET asked the Under Secretary for War whether he had seen the resolutions passed by the borough of Cambridge deprecating the action of the military authorities in withdrawing dentists from the practice of their profession and putting them to do the work of ordinary soldiers, and what was the policy of the War Office in the matter —Mr TENNANT wrote in reply I have not seen the resolution to which the honourable Member refers Claims for the exemption of dental surgeons whose services the principal medical officer considers indispensable have been assented to conditionally on their services with the troops being continued In other cases dentists have recourse to the tribunals in the ordinary way A decision by the Central Tribunal in a recent case has been circulated to tribunals In this case the dentist was granted exemption conditionally on his remaining in his present occupation The following was added "The Central Tribunal, from evidence submitted to them are impressed with the danger of further reducing the number of registered dentists now in this country Whether any particular dentist should be granted exemption must obviously depend to some extent upon the requirements of the place in which he practises, but they are inclined to think that unless it be shown that his services are not required, he should be granted exemption Similar considerations apply to the mechanics on whom dentists depend for the efficient performance of their work"

Treatment of Tuberculosis in Poor houses

Mr CURRIE asked the representative of the National Insurance Commissioners whether the practice which at one time caused dissatisfaction in Scotland of treating tuberculosis cases in poor houses was now entirely forbidden as regards both soldiers and civilians; and whether the public might rely upon no reversion to this practice being permitted —Mr CHARLES ROBERTS said in reply No such arrangement as is indicated in the question can be made by insurance committees under the National Insurance Acts If the honourable Member will furnish me with further information as to any specific case which he may have in mind, I shall be glad to make inquiry

Work of the Board of Control

Mr KING asked the Under Secretary for the Home Department whether the five Lunacy Commissioners now employed entirely on lunacy work were found sufficient for all the requirements of the Lunacy Acts seeing that 14 000 beds had now been removed from lunacy jurisdiction —Mr BRACE answered The work of the Board of Control has been carried out by the Commissioners working long hours, and at the expense of their usual vacation by the assistance given to them by one of the honorary Commissioners and by special arrangement of their work of a temporary nature

Mr KING In any further reduction will it be observed that at least the legal members of that Commission or the Board of Control will not be reduced in their capabilities and numbers?—Mr BRACE I think that the honourable Member may depend upon the Home Office doing that

Non poisonous Dope in Aircraft Factories

In the course of the debate on the Home Office Estimates in Committee of Supply Mr BRACE (Under Secretary for the Home Department) said The troublesome question of a non poisonous dope in aircraft factories is a matter on which the Home Office has been much disturbed We have had to answer questions in this House in regard to women and men whose lives have been taken because of their having to work this poisonous dope The dope question affects not only the Home Office but also and more particularly the Admiralty and the War Office I am glad to be able to say that as a result of communications between the Home Secretary and the Ministers of those two departments we at last see our way to having a non poisonous dope sufficient and effective for all purposes for aircraft whether for sea work or for work on land I am hoping that within a few weeks from now the poisonous dope which has been in use and has been so deadly to the workers will be a thing of the past The Home Office has been continually pressing for the best ventilation for greater precautions and for everything in the shape of precautionary measures that would make work upon poisonous dope less dangerous But we have felt all along that the real solution of the question was a non poisonous dope It has been a very difficult problem The three departments concerned have been working together and as a result I think the noble lord who brought forward this question (Lord Henry Cavendish Bentinck) may take it for certain that within a very short time all this danger will be removed and the workers in our aircraft factories will be able to go along their employment with infinitely less danger to life and health than has hitherto been the case

MONDAY, JULY 3RD

Nervous Cases in the Navy

Answering Commander BELLAIRS, who asked questions about the measures being taken to deal with cases of acute mental and nervous breakdown in the navy Mr MACNAMARA (Secretary to the Admiralty) wrote The treatment of all cases of mental and nervous breakdown is undertaken in the three large base naval hospitals at Chatham Haslar and Plymouth A medical officer who has made a specialty of such cases is detailed to each hospital and he has so many beds allotted to him as is necessary The treatment adopted is not to collect these cases in one ward or one building, but to separate them from each other as far as possible treating them with other general cases of illness So far this method of treatment has been followed by favourable results, but the number of cases of this type from the Fleet is not sufficiently large to enable more than a probable estimate of its value to be formed as yet Later on it is hoped a detailed report of the results obtained will be of value

Time expired Men of the Royal Army Medical Corps

Mr WATT asked the Under Secretary for War whether he was aware that time expired men of the Royal Army Medical Corps on offering themselves for re-enlistment were being told that they could not be reinstated in that corps, and were being relegated to rifle battalions, would he say whether this was done with the sanction and concurrence of his department, and why, in the interests of economy, the training of such men was not utilised —Mr TENNANT answered It would be in accordance with the principle which has been frequently urged in this House that any single man in the Royal Army Medical Corps fit for general service should be transferred to the infantry to make way for the older married men, who would rightly be given a preference as regards less exposed service Such transfers would not of course be made if they involved dislocation of the service from which the transfer was made

TUESDAY, JULY 4TH

Proposed Abolition of Certifying Surgeons

The House considered on second reading the Police Act (Miscellaneous Provisions), Bill one of the clauses of which proposes to abolish the system of reports on accidents in factories and workshops made by certifying surgeons

Mr HERBERT SAMUEL (Home Secretary) in moving the second reading said that he understood that there was considerable opposition to this clause affecting the position of certifying surgeons It was not proposed to abolish all the functions of these medical men They would still be called upon in respect of health work in connexion with children cases of industrial poisoning and the periodical examination of workers in dangerous trades The only point with which the clause dealt was the abolition of the reports which the certifying surgeons had hitherto made in reference to the deaths or injuries caused to workers by certain classes of accidents With regard to about one third of the whole number of accidents, the law required that the occupier or some other person in charge of the factory should report both to the factory inspector and the certifying surgeon The latter made a report stating the nature of the accident and for these reports a sum of £12 500 per annum was paid in fees The only duty of the certifying surgeon in this regard was to examine the workman and to certify that he had sustained such and such injuries He had nothing whatever to do with the cause of the accident or how its recurrence could be prevented What the Home Office really needed in this connexion were not men with medical knowledge but rather men with mechanical knowledge These reports made by certifying surgeons were found in practice not to save the factory inspector any work at all but rather to increase the clerical work and to be a hindrance rather than a help During the course of the year more than 50 000 of these reports were made by certifying surgeons and nearly always they were mere duplicates of the report of the occupier of the factory He would not dream of acquiescing in any change in the law which would weaken the safeguards of the worker On the contrary he held himself [illegible] everything possible to make industry more safe But the point was that they did not want doctors but more factory inspectors with technical knowledge A Special Committee which sat [illegible] in 1911 on this subject had unanimously reported [illegible] the reports were useless duplicates [illegible] advantage be abolished He had received [illegible] against his proposal from the representatives of [illegible] late [illegible] except from some local branches of the [illegible] The Transport Workers [illegible] expressed themselves [illegible] [illegible] highly [illegible] profession [illegible] [illegible] the Home [illegible] [illegible] there was a [illegible] [illegible]

Sir H CRAIK [illegible] Bill deal only [illegible] be war?

Mr SAMUEL No, it does not apply only for the period of the war It applies permanently Continuing the right honourable gentleman said that the Retrenchment Committee had also reported in favour of the abolition of these reports He did not know how any Member of the House could support their retention They were not worth the expenditure that they incurred and he could not continue to ask the Treasury for the £12,500 per annum which they cost in the existing circumstances

Sir H CRAIK said he was unwilling to delay a Bill of this kind which was an emergency measure But he was afraid the arguments of the Home Secretary had not persuaded him that this proposal was justified He would be the last to oppose any serious proposal for retrenchment, but really they ought to cultivate a sense of proportion He did not think that the money involved was great enough to induce certifying surgeons to raise an opposition from one end of the country to the other against this proposal He believed that there were only about 100 surgeons who had anything like considerable pay out of the annual sum of £12,500 About 1900 out of the 2000 surgeons only received mere pittances in fees for the work they did These were not salaried officers Certain pay was given for doing certain work He did not think it was fair to raise a question which had been the subject of dispute for years in an Emergency Bill In 1901 and 1905 legislation of a similar kind was attempted and had to be abandoned because of the opposition of the working classes There was not a single representative of the medical profession on the Committee to which the Home Secretary had referred nor was a single medical witness called before that Committee

Mr SAMUEL Oh, yes

Sir H CRAIK said that the certifying surgeons had distinctly informed him that they were not asked to give evidence on the subject The certifying surgeons considered the professional aspect of the matter as more important than the monetary consideration They were intimately acquainted with the workers and the accidents to which they were liable and it was because they wanted to do their best for the workers and had deep sympathy with them in their work that they desired that this part of their work should not be taken away from them He hoped that the Home Secretary would withdraw the obnoxious clause on the Committee stage

Mr TOOTHILL said that it was very desirable to effect retrenchment in the Departments of the State, but this should not be done where it was likely to interfere with the protection and safeguards, which ought to be strengthened rather than weakened in reference to the working classes of the country In taking up this position he was not animated at all by any kind of interest in the certifying surgeons

Sir P MAGNUS said he did not desire to oppose the second reading of the Bill, and he would reserve his additional arguments in favour of the retention of these duties by the certifying surgeons until the Committee stage

Mr WALSH said he doubted whether trade unionists all over the country had been aware that this clause was to be forced. For his part he would see that they were put into possession of the facts before the Committee stage

Mr BRACE (Under Secretary to the Home Department) said he was very surprised at the heat which had been developed in the debate and at the suspicion under which the Home Office lay because of this clause in the Bill They were introducing this proposal because they held that it was an essential and necessary reform in war time or any other time In 1914 the total number of accidents notified amounted to 159 415 and the number which were also notified by the certifying surgeons was 52,563 or less than one third of the total accidents. He had examined hundreds of these reports and in most cases he found them exactly the same as the report which the factory inspector sent in based on information supplied by the employer If he thought for one moment that the abolition of these reports would introduce danger to the health of life or limb of the factory workers he would not bring forward this proposal What were needed were more factory inspectors with technical knowledge and if they were to have a higher standard of medical inspection the Home Office would prefer to have full time medical inspectors rather than this system of certifying surgeons which at present existed

Mr ANEURIN WILLIAMS took objection to the proposal to abolish certifying surgeons The certifying surgeon had important functions to perform and important information to obtain He often reported on what should be done to prevent similar accidents recurring in the future There was certainly a small percentage of cases in which further precautions were required The certifying surgeon was the man on the spot first after the accident and he was the man who saw the patient It was not mechanical accidents with which these medical men had to deal They had to deal with chemical and electrical accidents Who was better able to form an opinion about a man who had been gassed? The certifying surgeon constituted as it were, the sieve through which thousands of accidents passed, and the inspector judged on the reports whether a visit from him was necessary or not The substantial services rendered in this respect should not be abolished until there was something to put in their place It was remarkable that no private Member who had spoken had supported the proposal in the Bill

Mr BARTLEY DENNISS considered that the economy involved in the abolition of certifying surgeons was very mistaken This attempt to alter a state of affairs which had prevailed for 70 years was being made at a time when accidents were more frequent than they had been before the war Inexperience and fatigue were the causes of most of the accidents There were more dangerous trades at present in operation than before Yet it was proposed to cut off the certifying surgeon, and at a time when there were not enough factory inspectors

Mr WHITEHOUSE protested strongly against the abolition of certifying surgeons

Mr GOLDSTONE remarked that these medical men were a guarantee that accurate reports were sent in by the employers

Mr H SAMUEL said that he still thought that large numbers of the reports of certifying surgeons were valueless, and he certainly would not have proposed their abolition if he thought that they were useful The Home Office was retaining the certifying surgeons' work which dealt with certificates of fitness, dangerous trades, and industrial poisoning He agreed that there was something to be said for certifying surgeons still being used in special cases There was a desirability of having reports from medical men where it was a case of septic poisoning or of gassing or a case resulting from some deleterious chemical substance He had contemplated arranging for medical reports in these cases He had been impressed by the debate, and he was sure that much had been said under misapprehension He would give further consideration to suggestions which had been made He would put down an amendment for the Committee stage which he thought would meet the views of some honourable Members and which while eliminating wasteful expenditure would endeavour to continue the work of the certifying surgeons where even in a limited number of cases it was likely to be useful to the factory inspector and also in dangerous cases

The Bill was then read a second time

WEDNESDAY JULY 5TH

German and Austrian Medical Men

Mr GEORGE FABER asked the Home Secretary how many German and Austrian medical practitioners, naturalised and enemy aliens respectively, there were at present in this country, and whether any, and if so how many of either class were interned —Mr HERBERT SAMUEL replied This information is not available and could not be obtained without very great labour The number of German and Austrian medical practitioners left in this country is small, as there was an arrangement for mutual repatriation at the beginning of the war

Appointments.

Successful applicants for vacancies Secretaries of Public Institutions and others possessing information suitable for this column, are invited to forward to THE LANCET Office directed to the Sub-Editor not later than 9 o clock on the Thursday morning of each week such information for gratuitous publication.

HILL, P E Colonel A M S T (Ret) has been appointed by the Western Command Medical Officer in charge of the German Prisoners Working Camp at Crickhowell

McMAHON A D M B B Ch R U I Temporary Tuberculosis Officer for Sunderland

MURRAY J J M B B Ch Belf Dispensary Medical Officer Downpatrick.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index)
When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor

ALTON HANTS LORD MAYOR TRELOAR CRIPPLES HOSPITAL—Assistant Resident Medical Officer

BEDFORD COUNTY HOSPITAL—House Surgeon unmarried. Salary as arranged with board &c.

BETHNAL GREEN INFIRMARY —Medical Superintendent &c. Salary &c approximately £763 per annum.

BIRMINGHAM AND MIDLAND EYE HOSPITAL Church-street —Resident Surgeon Salary £200 per annum with board &c

BIRMINGHAM UNIVERSITY —Lecturer in Physiological Department. Salary £200 per annum

BOLINGBROKE HOSPITAL, Wandsworth Common S W —Resident Medical Officer and House Surgeon. Salary £300 per annum and £200 per annum respectively with board, &c.

BOLTON INFIRMARY AND DISPENSARY —Female Third House Surgeon Salary £180 per annum with board &c.

who under the instructions issued are liable to be summoned for medical re examination There is no ground for the suggestion that anything inconsistent with what I said on May 24th will be done It is very difficult to say what number will be called up, and there is no means of ascertaining it

Exemptions to Dentists

Mr PAGET asked the Under Secretary for War whether he had seen the resolutions passed by the borough of Cambridge deprecating the action of the military authorities in withdrawing dentists from the practice of their profession and putting them to do the work of ordinary soldiers, and what was the policy of the War Office in the matter —Mr TENNANT wrote in reply I have not seen the resolution to which the honourable Member refers Claims for the exemption of dental surgeons whose services the principal medical officer considers indispensable have been assented to conditionally on their services with the troops being continued In other cases dentists have recourse to the tribunals in the ordinary way A decision by the Central Tribunal in a recent case has been circulated to tribunals In this case the dentist was granted exemption conditionally on his remaining in his present occupation The following was added ' The Central Tribunal, from evidence submitted to them, are impressed with the danger of further reducing the number of registered dentists now in this country Whether any particular dentist should be granted exemption must obviously depend to some extent upon the requirements of the place in which he practises, but they are inclined to think that unless it be shown that his services are not required, he should be granted exemption Similar considerations apply to the mechanics on whom dentists depend for the efficient performance of their work

Treatment of Tuberculosis in Poor houses

Mr CUPRIF asked the representative of the National Insurance Commissioners whether the practice which at one time caused dissatisfaction in Scotland of treating tuberculosis cases in poor houses was now entirely forbidden as regards both soldiers and civilians; and whether the public might rely upon no reversion to this practice being permitted —Mr CHARLES ROBERTS said in reply No such arrangement as is indicated in the question can be made by insurance committees under the National Insurance Acts If the honourable Member will furnish me with further information as to any specific case which he may have in mind, I shall be glad to make inquiry

Work of the Board of Control

Mr KING asked the Under Secretary for the Home Department whether the five Lunacy Commissioners now employed entirely on lunacy work were found sufficient for all the requirements of the Lunacy Acts seeing that 14 000 beds had now been removed from lunacy jurisdiction —Mr BRACE answered The work of the Board of Control has been carried out by the Commissioners working long hours, and at the expense of their usual vacation by the assistance given to them by one of the honorary Commissioners and by special arrangement of their work of a temporary nature

Mr KING In any further reduction will it be observed that at least the legal members of that Commission or the Board of Control will not be reduced in their capabilities and

MONDAY, JULY 3RD

Nervous Cases in the Navy

Answering Commander BELLAIRS who asked questions about the measures being taken to deal with cases of mental and nervous breakdown in the navy Mr MACNAMARA (Secretary to the Admiralty) wrote The treatment of all cases of mental and nervous breakdown is undertaken in the three large base naval hospitals at Chatham Haslar and Plymouth A medical officer who has made a specialty of such cases is detailed to each hospital and he has so many beds allotted to him as is necessary The treatment adopted is not to collect these cases in one ward or one building but to separate them from each other, as far as possible treating them with other general cases of illness So far this method of treatment has been followed by favourable results, but the number of cases of this type from the Fleet is not sufficiently large to enable more than a probable estimate of its value to be formed as yet Later on it is hoped a detailed report of the results obtained will be of value

Time expired Men of the Royal Army Medical Corps

Mr WATT asked the Under Secretary for War whether he was aware that time-expired men of the Royal Army Medical Corps on offering themselves for re-enlistment were being told that they could not be reinstated in that corps, and were being relegated to rifle battalions, would he say whether this was done with the sanction and concurrence of his department, and why, in the interests of economy the training of such men was not utilised —Mr TENNANT answered It would be in accordance with the principle which has been frequently urged in this House that any single man in the Royal Army Medical Corps fit for general service should be transferred to the infantry to make way for the older married men who would rightly be given a preference as regards less exposed service Such transfers would not of course be made if they involved dislocation of the service from which the transfer was made

TUESDAY, JULY 4TH

Proposed Abolition of Certifying Surgeons

The House considered on second reading the Police &c (Miscellaneous Provisions), Bill one of the clauses of which proposes to abolish the system of reports on accidents in factories and workshops made by certifying surgeons

Mr HERBERT SAMUEL (Home Secretary) in moving the second reading said that he understood that there was considerable opposition to this clause affecting the position of certifying surgeons It was not proposed to abolish all the functions of these medical men They would still be called upon in respect of health work in connexion with children cases of industrial poisoning, and the periodical examination of workers in dangerous trades The only point with which the clause dealt was the abolition of the reports which the certifying surgeons had hitherto made in reference to the deaths or injuries caused to workers by certain classes of accidents With regard to about one third of the whole number of accidents the law required that the occupier or some other person in charge of the factory should report both to the factory inspector and the certifying surgeon The latter made a report stating the nature of the accident and for these reports a sum of £12 500 per annum was paid in fees

Mr SAMUEL No, it does not apply only for the period of the war It applies permanently Continuing the right honourable gentleman said that the Retrenchment Committee had also reported in favour of the abolition of these reports He did not know how any Member of the House could support their retention They were not worth the expenditure that they incurred, and he could not continue to ask the Treasury for the £12,500 per annum which they cost in the existing circumstances

Sir H CRAIK said he was unwilling to delay a Bill of this kind which was an emergency measure But he was afraid the arguments of the Home Secretary had not persuaded him that this proposal was justified He would be the last to oppose any serious proposal for retrenchment, but really they ought to cultivate a sense of proportion He did not think that the money involved was great enough to induce certifying surgeons to raise an opposition from one end of the country to the other against this proposal He believed that there were only about 100 surgeons who had anything like considerable pay out of the annual sum of £12,500 About 1900 out of the 2000 surgeons only received mere pittances in fees for the work they did These were not salaried officers Certain pay was given for doing certain work He did not think it was fair to raise a question which had been the subject of dispute for years in an Emergency Bill In 1901 and 1905 legislation of a similar kind was attempted and had to be abandoned because of the opposition of the working classes There was not a single representative of the medical profession on the Committee to which the Home Secretary had referred, nor was a single medical witness called before that Committee

Mr SAMUEL Oh, yes

Sir H CRAIK said that the certifying surgeons had distinctly informed him that they were not asked to give evidence on the subject The certifying surgeons considered the professional aspect of the matter as more important than the monetary consideration They were intimately acquainted with the workers and the accidents to which they were liable, and it was because they wanted to do their best for the workers and had deep sympathy with them in their work that they desired that this part of their work should not be taken away from them He hoped that the Home Secretary would withdraw the obnoxious clause on the Committee stage

Mr TOOTILL said that it was very desirable to effect retrenchment in the Departments of the State, but this should not be done where it was likely to interfere with the protection and safeguards, which ought to be strengthened rather than weakened, in reference to the working classes of the country In taking up this position he was not animated at all by any kind of interest in the certifying surgeons

Sir P MAGNUS said he did not desire to oppose the second reading of the Bill, and he would reserve his additional arguments in favour of the retention of these duties by the certifying surgeons until the Committee stage

Mr WALSH said he doubted whether trade unionists all over the country had been aware that this clause was to be forced For his part he would see that they were put into possession of the facts before the Committee stage

Mr BRACE (Under Secretary to the Home Department) said he was very surprised at the heat which had been developed in the debate and at the suspicion under which the Home Office lay because of this clause in the Bill They were introducing this proposal because they held that it was an essential and necessary reform in war time or any other time In 1914 the total number of accidents notified amounted to 159 413 and the number which were also notified by the certifying surgeons was 52,563 or less than one third of the total accidents He had examined hundreds of these reports, and in most cases he found them exactly the same as the report which the factory inspector sent in based on information supplied by the employer If he thought for one moment that the abolition of these reports would introduce danger to the health of life or limb of the factory workers he would not bring forward this proposal What were needed were more factory inspectors with technical knowledge and if they were to have a higher standard of medical inspection the Home Office would prefer to have full time medical inspectors rather than this system of certifying surgeons which at present existed

Mr ANEURIN WILLIAMS took objection to the proposal to abolish certifying surgeons The certifying surgeon had important functions to perform and important information to obtain He often reported on what should be done to prevent similar accidents recurring in the future There was certainly a small percentage of cases in which further precautions were required The certifying surgeon was the man on the spot first after the accident and he was the man who saw the patient It was not mechanical accidents with which these medical men had to deal They had to deal with chemical and electrical accidents Who was better able to form an opinion about a man who had been gassed? The certifying surgeon constituted, as it were, the sieve through which thousands of accidents passed, and the inspector judged on the reports whether a visit from him was necessary or not The substantial services rendered in this respect should not be abolished until there was something to put in their place It was remarkable that no private Member who had spoken had supported the proposal in the Bill

Mr BARTLEY DENNISS considered that the economy involved in the abolition of certifying surgeons was very mistaken This attempt to alter a state of affairs which had prevailed for 70 years was being made at a time when accidents were more frequent than they had been before the war Inexperience and fatigue were the causes of most of the accidents There were more dangerous trades at present in operation than before Yet it was proposed to cut off the certifying surgeon, and at a time when there were not enough factory inspectors

Mr WHITEHOUSE protested strongly against the abolition of certifying surgeons

Mr GOLDSTONE remarked that these medical men were a guarantee that accurate reports were sent in by the employers

Mr H SAMUEL said that he still thought that large numbers of the reports of certifying surgeons were valueless, and he certainly would not have proposed their abolition if he thought that they were useful The Home Office was retaining the certifying surgeons' work which dealt with certificates of fitness, dangerous trades, and industrial poisoning He agreed that there was something to be said for certifying surgeons still being used in special cases There was a desirability of having reports from medical men where it was a case of septic poisoning or of gassing or a case resulting from some deleterious chemical substance He had contemplated arranging for medical reports in these cases He had been impressed by the debate, and he was sure that much had been said under misapprehension He would give further consideration to suggestions which had been made He would put down an amendment for the Committee stage which he thought would meet the views of some honourable Members, and which while eliminating wasteful expenditure would endeavour to continue the work of the certifying surgeons where even in a limited number of cases it was likely to be useful to the factory inspector, and also in dangerous cases

The Bill was then read a second time

WEDNESDAY, JULY 5TH

German and Austrian Medical Men

Mr GEORGE FABER asked the Home Secretary how many German and Austrian medical practitioners, naturalised and enemy aliens respectively, there were at present in this country, and whether any, and if so how many, of either class were interned —Mr HERBERT SAMUEL replied This information is not available, and could not be obtained without very great labour The number of German and Austrian medical practitioners left in this country is small, as there was an arrangement for mutual repatriation at the beginning of the war

Appointments.

Successful applicants for vacancies Secretaries of Public Institutions and others possessing information suitable for this column, are invited to forward to THE LANCET *Office directed to the Sub-Editor not later than 9 o clock on the Thursday morning of each week such information for gratuitous publication.*

HILL, P E Colonel A M S T (Ret.) has been appointed by the Western Command Medical Officer in charge of the German Prisoners Working Camp at Crickhowell

McMAHON A. D M B B Ch R U I Temporary Tuberculosis Officer for Sunderland

MURRAY J J M B B Ch Belf Dispensary Medical Officer Downpatrick

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index)

When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor

ALTON HANTS LORD MAYOR TRELOAR CRIPPLES HOSPITAL.—Assistant Resident Medical Officer

BEDFORD COUNTY HOSPITAL.—House Surgeon unmarried Salary as arranged with board &c.

BETHNAL GREEN INFIRMARY —Medical Superintendent &c Salary &c approximately £763 per annum

BIRMINGHAM AND MIDLAND EYE HOSPITAL, Church-street —Resident Surgeon Salary £200 per annum with board &c.

BIRMINGHAM UNIVERSITY —Lecturer in Physiological Department Salary £200 per annum

BOLINGBROKE HOSPITAL, Wandsworth Common S W —Resident Medical Officer and House Surgeon Salary £300 per annum and £200 per annum respectively with board &c.

BOLTON INFIRMARY AND DISPENSARY —Female Third House Surgeon Salary £180 per annum with board &c.

who under the instructions issued are liable to be summoned for medical re examination There is no ground for the suggestion that anything inconsistent with what I said on May 24th will be done It is very difficult to say what number will be called up, and there is no means of ascertaining it

Exemptions to Dentists

Mr PAGET asked the Under Secretary for War whether he had seen the resolutions passed by the borough of Cambridge deprecating the action of the military authorities in withdrawing dentists from the practice of their profession and putting them to do the work of ordinary soldiers, and what was the policy of the War Office in the matter —Mr TENNANT wrote in reply I have not seen the resolution to which the honourable Member refers Claims for the exemption of dental surgeons whose services the principal medical officer considers indispensable have been assented to conditionally on their services with the troops being continued In other cases dentists have recourse to the tribunals in the ordinary way A decision by the Central Tribunal in a recent case has been circulated to tribunals In this case the dentist was granted exemption conditionally on his remaining in his present occupation The following was added 'The Central Tribunal, from evidence submitted to them, are impressed with the danger of further reducing the number of registered dentists now in this country Whether any particular dentist should be granted exemption must obviously depend to some extent upon the requirements of the place in which he practises, but they are inclined to think that unless it be shown that his services are not required, he should be granted exemption Similar considerations apply to the mechanics on whom dentists depend for the efficient performance of their work"

Treatment of Tuberculosis in Poor houses

Mr CUPRIF asked the representative of the National Insurance Commissioners whether the practice which at one time caused dissatisfaction in Scotland of treating tuberculosis cases in poor houses was now entirely forbidden as regards both soldiers and civilians; and whether the public might rely upon no reversion to this practice being permitted —Mr CHARLES ROBERTS said in reply No such arrangement as is indicated in the question can be made by insurance committees under the National Insurance Acts If the honourable Member will furnish me with further information as to any specific case which he may have in mind, I shall be glad to make inquiry

Work of the Board of Control

Mr KING asked the Under Secretary for the Home Department whether the five Lunacy Commissioners now employed entirely on lunacy work were found sufficient for all the requirements of the Lunacy Acts seeing that 14 000 beds had now been removed from lunacy jurisdiction —Mr BRACE answered The work of the Board of Control has been carried out by the Commissioners working long hours, and at the expense of their usual vacation by the assistance given to them by one of the honorary Commissioners, and by special arrangement of their work of a temporary nature

Mr KING In any further reduction will it be observed that at least the legal members of that Commission or the Board of Control will not be reduced in their capabilities and numbers?—Mr BRACE I think that the honourable Member may depend upon the Home Office doing that

Non poisonous Dope in Aircraft Factories

In the course of the debate on the Home Office Estimates in Committee of Supply, Mr BRACE (Under Secretary for the Home Department) said The troublesome question of a [illegible] matter on

MONDAY, JULY 3RD

Nervous Cases in the Navy

Answering Commander BELLAIRS who asked questions about the measures being taken to deal with cases of mental and nervous breakdown in the navy, Mr MACNAMARA (Secretary to the Admiralty) wrote The treatment of all cases of mental and nervous breakdown is undertaken in the three large base naval hospitals at Chatham Haslar and Plymouth A medical officer who has made a specialty of such cases is detailed to each hospital and he has so many beds allotted to him as is necessary The treatment adopted is not to collect these cases in one ward or one building but to separate them from each other as far as possible treating them with other general cases of illness So far this method of treatment has been followed by favourable results, but the number of cases of this type from the Fleet is not sufficiently large to enable more than a probable estimate of its value to be formed as yet Later on it is hoped a detailed report of the results obtained will be of value

Time-expired Men of the Royal Army Medical Corps

Mr WATT asked the Under Secretary for War whether he was aware that time expired men of the Royal Army Medical Corps on offering themselves for re-enlistment were being told that they could not be reinstated in that corps, and were being relegated to rifle battalions, would he say whether this was done with the sanction and concurrence of his department, and why, in the interests of economy, the training of such men was not utilised —Mr TENNANT answered It would be in accordance with the principle which has been frequently urged in this House that any single man in the Royal Army Medical Corps fit for general service should be transferred to the infantry to make way for the older married men who would rightly be given a preference as regards less exposed service Such transfers would not of course be made if they involved dislocation of the service from which the transfer was made

TUESDAY, JULY 4TH

Proposed Abolition of Certifying Surgeons

The House considered on second reading the Police &c (Miscellaneous Provisions), Bill one of the clauses of which proposes to abolish the system of reports on accidents in factories and workshops made by certifying surgeons

Mr HERBERT SAMUEL (Home Secretary) in moving the second reading, said that he understood that there was considerable opposition to this clause affecting the position of certifying surgeons It was not proposed to abolish all the functions of these medical men They would still be called upon in respect of health work in connexion with children cases of industrial poisoning and the periodical examination of workers in dangerous trades The only point with which the clause dealt was the abolition of the reports which the certifying surgeons had hitherto made in reference to the deaths or injuries caused to workers by certain classes of accidents With regard to about one third of the whole number of accidents the law required that the occupier or some other person in charge of the factory should report both to the factory inspector and the certifying surgeon The latter made a report stating the nature of the accident and for these reports a sum of £12 500 per annum was paid in fees The only duty of the certifying surgeon in this regard was to examine the workman and to certify that he had sustained such and such injuries He had nothing whatever to do with the cause of the accident or how its recurrence could be prevented What the Home Office really needed in this connexion were not men with medical knowledge but rather men with mechanical knowledge These reports made by [illegible]

Mr SAMUEL No, it does not apply only for the period of the war It applies permanently Continuing the right honourable gentleman said that the Retrenchment Committee had also reported in favour of the abolition of these reports He did not know how any Member of the House could support their retention They were not worth the expenditure that they incurred and he could not continue to ask the Treasury for the £12,500 per annum which they cost in the existing circumstances

Sir H CRAIK said he was unwilling to delay a Bill of this kind which was an emergency measure But he was afraid the arguments of the Home Secretary had not persuaded him that this proposal was justified He would be the last to oppose any serious proposal for retrenchment but really they ought to cultivate a sense of proportion He did not think that the money involved was great enough to induce certifying surgeons to raise an opposition from one end of the country to the other against this proposal He believed that there were only about 100 surgeons who had anything like considerable pay out of the annual sum of £12,500 About 1900 out of the 2000 surgeons only received mere pittances in fees for the work they did These were not salaried officers Certain pay was given for doing certain work He did not think it was fair to raise a question which had been the subject of dispute for years in an Emergency Bill In 1901 and 1905 legislation of a similar kind was attempted and had to be abandoned because of the opposition of the working classes There was not a single representative of the medical profession on the Committee to which the Home Secretary had referred, nor was a single medical witness called before that Committee

Mr SAMUEL Oh, yes

Sir H CRAIK said that the certifying surgeons had distinctly informed him that they were not asked to give evidence on the subject The certifying surgeons considered the professional aspect of the matter as more important than the monetary consideration They were intimately acquainted with the workers and the accidents to which they were liable, and it was because they wanted to do their best for the workers and had deep sympathy with them in their work that they desired that this part of their work should not be taken away from them He hoped that the Home Secretary would withdraw the obnoxious clause on the Committee stage

Mr TOOTHILL said that it was very desirable to effect retrenchment in the Departments of the State, but this should not be done where it was likely to interfere with the protection and safeguards, which ought to be strengthened rather than weakened in reference to the working classes of the country In taking up this position he was not animated at all by any kind of interest in the certifying surgeons

Sir P MAGNUS said he did not desire to oppose the second reading of the Bill, and he would reserve his additional arguments in favour of the retention of these duties by the certifying surgeons until the Committee stage

Mr WALSH said he doubted whether trade unionists all over the country had been aware that this clause was to be forced For his part he would see that they were put into possession of the facts before the Committee stage

Mr BEACE (Under Secretary to the Home Department) said he was very surprised at the heat which had been developed in the debate and at the suspicion under which the Home Office lay because of this clause in the Bill They were introducing this proposal because they held that it was an essential and necessary reform in war time or any other time In 1914 the total number of accidents notified amounted to 159 413 and the number which were also notified by the certifying surgeons was 52 563 or less than one-third of the total accidents He had examined hundreds of these reports and in most cases he found them exactly the same as the report which the factory inspector sent in based on information supplied by the employer If he thought for one moment that the abolition of these reports would introduce danger to the health of life or limb of the factory workers he would not bring forward this proposal What were needed were more factory inspectors with technical knowledge and if they were to have a higher standard of medical inspection the Home Office would prefer to have full time medical inspectors rather than this system of certifying surgeons which at present existed

Mr ANEURIN WILLIAMS took objection to the proposal to abolish certifying surgeons The certifying surgeon had important functions to perform and important information to obtain He often reported on what should be done to prevent similar accidents recurring in the future There was certainly a small percentage of cases in which further precautions were required The certifying surgeon was the man on the spot first after the accident and he was the man who saw the patient It was no mechanical accidents with which these medical men had to deal They had to deal with chemical and electrical accidents Who was better able to form an opinion about a man who had been gassed? The certifying surgeon constituted, as it were, the sieve through which thousands of accidents passed and the inspector judged on the reports whether a visit from him was necessary or not The substantial services rendered in this respect should not be abolished until there was something to put in their place It was remarkable that no private Member who had spoken had supported the proposal in the Bill

Mr BARTLEY DENNISS considered that the economy involved in the abolition of certifying surgeons was very mistaken This attempt to alter a state of affairs which had prevailed for 70 years was being made at a time when accidents were more frequent than they had been before the war Inexperience and fatigue were the causes of most of the accidents There were more dangerous trades at present in operation than before Yet it was proposed to cut off the certifying surgeon, and at a time when there were not enough factory inspectors

Mr WHITEHOUSE protested strongly against the abolition of certifying surgeons

Mr GOLDSTONE remarked that these medical men were a guarantee that accurate reports were sent in by the employers

Mr H SAMUEL said that he still thought that large numbers of the reports of certifying surgeons were valueless, and he certainly would not have proposed their abolition if he thought that they were useful The Home Office was retaining the certifying surgeons' work which dealt with certificates of fitness, dangerous trades, and industrial poisoning He agreed that there was something to be said for certifying surgeons still being used in special cases There was a desirability of having reports from medical men where it was a case of septic poisoning or of gassing or a case resulting from some deleterious chemical substance He had contemplated arranging for medical reports in these cases He had been impressed by the debate, and he was sure that much had been said under misapprehension He would give further consideration to suggestions which had been made He would put down an amendment for the Committee stage which he thought would meet the views of some honourable Members and which while eliminating wasteful expenditure would endeavour to continue the work of the certifying surgeons where even in a limited number of cases it was likely to be useful to the factory inspector, and also in dangerous cases

The Bill was then read a second time

WEDNESDAY JULY 5TH

German and Austrian Medical Men

Mr GEORGE FABER asked the Home Secretary how many German and Austrian medical practitioners, naturalised and enemy aliens respectively, there were at present in this country, and whether any, and if so how many, of either class were interned —Mr HERBERT SAMUEL replied This information is not available and could not be obtained without very great labour The number of German and Austrian medical practitioners left in this country is small, as there was an arrangement for mutual repatriation at the beginning of the war

Appointments.

Successful applicants for vacancies Secretaries of Public Institutions and others possessing information suitable for this column, are invited to forward to THE LANCET *Office directed to the Sub-Editor not later than 9 o clock on the Thursday morning of each week such information for gratuitous publication*

HILL P E Colonel A M S T (Re) has been appointed by the Western Command Medical Officer in charge of the German Prisoners Working Camp at Crickhowell

McMAHON A D M B B Ch R U I Temporary Tuberculosis Officer for Sunderland

MURRAY J J M B B Ch Belf Dispensary Medical Officer Downpatrick.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index)

When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor

ALTON HANTS LORD MAYOR TRELOAR CRIPPLES HOSPITAL.—Assistant Resident Medical Officer

BEDFORD COUNTY HOSPITAL.—House Surgeon unmarried. Salary as arranged with board, &c.

BETHNAL GREEN INFIRMARY —Medical Superintendent &c. Salary &c approximately £763 per annum

BIRMINGHAM AND MIDLAND EYE HOSPITAL, Church-street.—Resident Surgeon Salary £200 per annum with board &c

BIRMINGHAM UNIVERSITY —Lecturer in Physiological Department Salary £200 per annum

BOLINGBROKE HOSPITAL, Wandsworth Common S W —Resident Medical Officer and House Surgeon Salary £300 per annum and £200 per annum respectively with board, &c.

BOLTON INFIRMARY AND DISPENSARY —Female Third House Surgeon Salary £120 per annum with board &c.

who under the instructions issued are liable to be summoned for medical re examination There is no ground for the suggestion that anything inconsistent with what I said on May 24th will be done It is very difficult to say what number will be called up, and there is no means of ascertaining it

Exemptions to Dentists

Mr PAGET asked the Under Secretary for War whether he had seen the resolutions passed by the borough of Cambridge deprecating the action of the military authorities in withdrawing dentists from the practice of their profession and putting them to do the work of ordinary soldiers, and what was the policy of the War Office in the matter —Mr TENNANT wrote in reply I have not seen the resolution to which the honourable Member refers Claims for the exemption of dental surgeons whose services the principal medical officer considers indispensable have been assented to conditionally on their services with the troops being continued In other cases dentists have recourse to the tribunals in the ordinary way A decision by the Central Tribunal in a recent case has been circulated to tribunals In this case the dentist was granted exemption conditionally on his remaining in his present occupation The following was added "The Central Tribunal from evidence submitted to them, are impressed with the danger of further reducing the number of registered dentists now in this country Whether any particular dentist should be granted exemption must obviously depend to some extent upon the requirements of the place in which he practises, but they are inclined to think that unless it be shown that his services are not required, he should be granted exemption Similar considerations apply to the mechanics on whom dentists depend for the efficient performance of their work

Treatment of Tuberculosis in Poor houses

Mr CUPRIF asked the representative of the National Insurance Commissioners whether the practice which at one time caused dissatisfaction in Scotland of treating tuberculosis cases in poor houses was now entirely forbidden as regards both soldiers and civilians; and whether the public might rely upon no reversion to this practice being permitted —Mr CHARLES ROBERTS said in reply No such arrangement as is indicated in the question can be made by insurance committees under the National Insurance Acts If the honourable Member will furnish me with further information as to any specific case which he may have in mind, I shall be glad to make inquiry

Work of the Board of Control

Mr KING asked the Under Secretary for the Home Department whether the five Lunacy Commissioners now employed entirely on lunacy work were found sufficient for all the requirements of the Lunacy Acts seeing that 14 000 beds had now been removed from lunacy jurisdiction —Mr BRACE answered The work of the Board of Control has been carried out by the Commissioners working long hours and at the expense of their usual vacation by the assistance given to them by one of the honorary Commissioners and by special arrangement of their work of a temporary nature

Mr KING In any further reduction will it be observed that at least the legal members of that Commission or the Board of Control will not be reduced in their capabilities and numbers?—Mr BRACE I think that the honourable Member may depend upon the Home Office doing that

Non poisonous Dope in Aircraft Factories

In the course of the debate on the Home Office Estimates in Committee of Supply, Mr BRACE (Under Secretary for the Home Department) said The troublesome question of a non poisonous dope in aircraft factories is a matter on [illegible] had

MONDAY, JULY 3RD

Nervous Cases in the Navy

Answering Commander BELLAIRS who asked questions about the measures being taken to deal with cases of mental and nervous breakdown in the navy, Mr MACKINNON (Secretary to the Admiralty) wrote The treatment of all cases of mental and nervous breakdown is undertaken in the three large base naval hospitals at Chatham Haslar and Plymouth A medical officer who has made a specialty of such cases is detailed to each hospital and he has so many beds allotted to him as is necessary The treatment adopted is not to collect these cases in one ward or one building but to separate them from each other as far as possible treating them with other general cases of illness So far this method of treatment has been followed by favourable results, but the number of cases of this type from the Fleet is not sufficiently large to enable more than a probable estimate of its value to be formed as yet Later on it is hoped a detailed report of the results obtained will be of value

Time expired Men of the Royal Army Medical Corps

Mr WATT asked the Under Secretary for War whether he was aware that time expired men of the Royal Army Medical Corps on offering themselves for re-enlistment were being told that they could not be reinstated in that corps, and were being relegated to rifle battalions, would he say whether this was done with the sanction and concurrence of his department, and why, in the interests of economy, the training of such men was not utilised —Mr TENNANT answered It would be in accordance with the principle which has been frequently urged in this House that any single man in the Royal Army Medical Corps fit for general service should be transferred to the infantry to make way for the older married men who would rightly be given a preference as regards less exposed service Such transfers would not of course be made if they involved dislocation of the service from which the transfer was made

TUESDAY, JULY 4TH

Proposed Abolition of Certifying Surgeons

The House considered on second reading the Police &c (Miscellaneous Provisions) Bill one of the clauses of which proposes to abolish the system of reports on accidents in factories and workshops made by certifying surgeons

Mr HERBERT SAMUEL (Home Secretary) in moving the second reading, said that he understood that there was considerable opposition to this clause affecting the position of certifying surgeons It was not proposed to abolish all the functions of these medical men They would still be called upon in respect of health work in connexion with children cases of industrial poisoning and the periodical examination of workers in dangerous trades The only point with which the clause dealt was the abolition of the reports which the certifying surgeons had hitherto made in reference to the deaths or injuries caused to workers by certain classes of accidents With regard to about one third of the whole number of accidents the law required that the occupier or some other person in charge of the factory should report both to the factory inspector and the certifying surgeon The latter made a report stating the nature of the accident and for these reports a sum of £12 500 per annum was paid in fees The only duty of the certifying surgeon in this regard was to examine the workman and to certify that he had sustained such and such injuries He had nothing whatever to do with the cause of the accident or how its recurrence could be prevented What the Home Office really needed in this connexion were not men with medical knowledge but rather men with mechanical knowledge These reports made by certifying surgeons were found in practice not to save the [illegible]

Mr SAMUEL No, it does not apply only for the period of the war It applies permanently Continuing the right honourable gentleman said that the Retrenchment Committee had also reported in favour of the abolition of these reports He did not know how any Member of the House could support their retention They were not worth the expenditure that they incurred, and he could not continue to ask the Treasury for the £12,500 per annum which they cost in the existing circumstances

Sir H CRAIK said he was unwilling to delay a Bill of this kind which was an emergency measure But he was afraid the arguments of the Home Secretary had not persuaded him that this proposal was justified He would be the last to oppose any serious proposal for retrenchment, but really they ought to cultivate a sense of proportion He did not think that the money involved was great enough to induce certifying surgeons to raise an opposition from one end of the country to the other against this proposal He believed that there were only about 100 surgeons who had anything like considerable pay out of the annual sum of £12,500 About 1900 out of the 2000 surgeons only received mere pittances in fees for the work they did These were not salaried officers Certain pay was given for doing certain work. He did not think it was fair to raise a question which had been the subject of dispute for years in an Emergency Bill In 1901 and 1905 legislation of a similar kind was attempted and had to be abandoned because of the opposition of the working classes There was not a single representative of the medical profession on the Committee to which the Home Secretary had referred, nor was a single medical witness called before that Committee

Mr SAMUEL Oh, yes

Sir H CRAIK said that the certifying surgeons had distinctly informed him that they were not asked to give evidence on the subject The certifying surgeons considered the professional aspect of the matter as more important than the monetary consideration They were intimately acquainted with the workers and the accidents to which they were liable, and it was because they wanted to do their best for the workers and had deep sympathy with them in their work that they desired that this part of their work should not be taken away from them He hoped that the Home Secretary would withdraw the obnoxious clause on the Committee stage

Mr TOOTILL said that it was very desirable to effect retrenchment in the Departments of the State, but this should not be done where it was likely to interfere with the protection and safeguards, which ought to be strengthened rather than weakened, in reference to the working classes of the country In taking up this position he was not animated at all by any kind of interest in the certifying surgeons

Sir P MAGNUS said he did not desire to oppose the second reading of the Bill, and he would reserve his additional arguments in favour of the retention of these duties by the certifying surgeons until the Committee stage

Mr WALSH said he doubted whether trade unionists all over the country had been aware that this clause was to be forced For his part he would see that they were put into possession of the facts before the Committee stage

Mr BRACE (Under Secretary to the Home Department) said he was very surprised at the heat which had been developed in the debate and at the suspicion under which the Home Office lay because of this clause in the Bill They were introducing this proposal because they held that it was an essential and necessary reform in war time or any other time In 1914 the total number of accidents notified amounted to 159,413 and the number which were also notified by the certifying surgeons was 52,553 or less than one-third of the total accidents He had examined hundreds of these reports and in most cases he found them exactly the same as the report which the factory inspector sent in based on information supplied by the employer If he thought for one moment that the abolition of these reports would introduce danger to the health of life or limb of the factory workers he would not bring forward this proposal What were needed were more factory inspectors with technical knowledge and if they were to have a higher standard of medical inspection the Home Office would prefer to have full time medical inspectors rather than this system of certifying surgeons which at present existed

Mr ANEURIN WILLIAMS took objection to the proposal to abolish certifying surgeons The certifying surgeon had important functions to perform and important information to obtain He often reported on what should be done to prevent similar accidents recurring in the future There was certainly a small percentage of cases in which further precautions were required The certifying surgeon was the man on the spot first after the accident and he was he man who saw the patient It was not mechanical accidents with which these medical men had to deal They had to deal with chemical and electrical accidents Who was better able to form an opinion about a man who had been gassed? The certifying surgeon constituted as it were, the sieve through which thousands of accidents passed, and the inspector judged on the reports whether a visit from him was necessary or not The substantial services rendered in this respect should not be abolished until there was something to put in their place It was remarkable that no private Member who had spoken had supported the proposal in the Bill

Mr BARTLEY DENNISS considered that the economy involved in the abolition of certifying surgeons was very mistaken This attempt to alter a state of affairs which had prevailed for 70 years was being made at a time when accidents were more frequent than they had been before the war Inexperience and fatigue were the causes of most of the accidents There were more dangerous trades at present in operation than before Yet it was proposed to cut off the certifying surgeon, and at a time when there were not enough factory inspectors

Mr WHITEHOUSE protested strongly against the abolition of certifying surgeons

Mr GOLDSTONE remarked that these medical men were a guarantee that accurate reports were sent in by the employers

Mr H SAMUEL said that he still thought that large numbers of the reports of certifying surgeons were valueless, and he certainly would not have proposed their abolition if he thought that they were useful The Home Office was retaining the certifying surgeons' work which dealt with certificates of fitness, dangerous trades and industrial poisoning He agreed that there was something to be said for certifying surgeons still being used in special cases There was a desirability of having reports from medical men where it was a case of septic poisoning or of gassing or a case resulting from some deleterious chemical substance He had contemplated arranging for medical reports in these cases He had been impressed by the debate, and he was sure that much had been said under misapprehension He would give further consideration to suggestions which had been made He would put down an amendment for the Committee stage which he thought would meet the views of some honourable Members, and which while eliminating wasteful expenditure would endeavour to continue the work of the certifying surgeons where even in a limited number of cases it was likely to be useful to the factory inspector, and also in dangerous cases

The Bill was then read a second time

WEDNESDAY JULY 5TH

German and Austrian Medical Men

Mr GEORGE FABER asked the Home Secretary how many German and Austrian medical practitioners, naturalised and enemy aliens respectively, there were at present in this country, and whether any, and if so how many of either class were interned —Mr HERBERT SAMUEL replied This information is not available, and could not be obtained without very great labour The number of German and Austrian medical practitioners left in this country is small, as there was an arrangement for mutual repatriation at the beginning of the war

Appointments.

Successful applicants for vacancies Secretaries of Public Institutions and others possessing information suitable for this column, are invited to forward to THE LANCET *Office directed to the Sub-Editor not later than 9 o clock on the Thursday morning of each week, such information for gratuitous publication*

HILL, P E Colonel A.M S T (Ret) has been appointed by the Western Command Medical Officer in charge of the German Prisoners Working Camp at Crickhowell

McMAHON A. D M B B Ch R.U I Temporary Tuberculosis Officer for Sunderland

MURRAY J J M.B B Ch Belf Dispensary Medical Officer Downpatrick

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index)

When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor

ALTON HANTS LORD MAYOR TRELOAR CRIPPLES HOSPITAL.—Assistant Resident Medical Officer

BEDFORD COUNTY HOSPITAL.—House Surgeon unmarried. Salary as arranged with board &c.

BETHNAL GREEN INFIRMARY —Medical Superintendent &c Salary &c. approximately £763 per annum

BIRMINGHAM AND MIDLAND EYE HOSPITAL, Church-street.—Resident Surgeon Salary £200 per annum with board &c.

BIRMINGHAM UNIVERSITY —Lecturer in Physiological Department Salary £200 per annum

BOLINGBROKE HOSPITAL, Wandsworth Common S W —Resident Medical Officer and House Surgeon Salary £300 per annum and £200 per annum respectively with board &c.

BOLTON INFIRMARY AND DISPENSARY —Female Third House Surgeon Salary £120 per annum with board &c.

BRISTOL ROYAL INFIRMARY —House Surgeons and House Physicians Salary at rate of £120 per annum with board &c

BROMLEY EDUCATION COMMITTEE —School Medical Officer Salary £300 per annum

BURTON ON TRENT COUNTY BOROUGH —Temporary Assistant Medical Officer Salary £300 per annum

DUDLEY INFIRMARY —Junior House Surgeon Salary £150 per annum with board &c.

CAMBRIDGE ADDENBROOKE'S HOSPITAL.—House Surgeon Salary £250 per annum with board &c

DEVON AND CORNWALL SANATORIUM Didworthy South Brent —Locum Tenens for four weeks Salary 6 guineas per week

GREAT NORTHERN CENTRAL HOSPITAL, Holloway road N —House Surgeon for six months Salary at rate of £100 per annum with board &c

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST Brompton —House Physician for six months Salary 30 guineas

HULL, VICTORIA HOSPITAL FOR SICK CHILDREN —Female House Surgeon Salary £100 per annum with board &c

KIRKBURTON STORTHES HALL ASYLUM near Huddersfield —Locum Tenens Salary £7 7s per week with board, &c

LEAMINGTON SPA, WARNEFORD GENERAL HOSPITAL.—Junior Resident Medical Officer Salary £150 per annum with board &c

LIVERPOOL, BROWNLOW HILL INSTITUTION —Female Resident Assistant Medical Officer Salary at rate of £300 per annum with rations &c

LONDON TEMPERANCE HOSPITAL, Hampstead road N W —Assistant Resident Medical Officer for six months Salary at rate of £120 per annum with board &c. Also Surgical Registrar Salary at rate of 40 guineas per annum

LONDON THROAT HOSPITAL, 204 Great Portland street W —House Surgeon Salary £50 per annum

MANCHESTER CITY —Medical Officer Salary £350 per annum

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN Park place Cheetham Hill road —Female House Surgeon Salary £120 per annum with board &c

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST 7 Fitzroy square W —Female Clinical Assistants in Out patient Department

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC Queen square Bloomsbury W C —Junior House Physician Salary £100 per annum with board &c

NORTHAMPTON GENERAL HOSPITAL.—House Surgeon Salary £150 per annum, with board &c

PLYMOUTH SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Physician Salary £200 per annum with board &c

READING ROYAL BERKSHIRE HOSPITAL.—House Physician for six months Salary £250 per annum with board &c

ROYAL FREE HOSPITAL, Gray's Inn road W C —Third Resident Medical Officer in Officers Section Salary 14s per day &c

SCOTLAND NAVAL AUXILIARY HOSPITAL.—X Ray Operator and Anæsthetist

WEST RIDING OF YORKSHIRE MIDDLETON IN WHARFEDALE SANATORIUM near Ilkley —Assistant Medical Officer Salary £350 per annum

THE Chief Inspector of Factories Home Office London S W gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Dufftown Banff at Longton Lancs at Tibshelf Derby at Girvan Ayr at Rothwell Northampton at King's Lynn Norfolk and at Swansea Glamorgan

Notes, Short Comments, and Answers to Correspondents.

THE PRIVATE REMOVAL OF SICK OR WOUNDED FROM ABROAD

To the Editor of THE LANCET

SIR —A sick or wounded man lying in a military hospital abroad may have friends who would be glad to fetch him home themselves or they might like to depute the mission to a medical man, rather than await the invalid's arrival by a hospital convoy

Is it permissible for a civilian to visit a patient at a military hospital abroad, and possible to obtain the consent of the authorities to the man's removal as an ordinary traveller? I am, Sir, yours faithfully

July 3rd, 1916 M D

* Every case would entail a separate application for permission and freedom of travel is necessarily largely abolished for civilians —ED L

A DISTINCTIVE MEDICINE BOTTLE

IF only for the reason that it emphasises a need we welcome any invention that has for its object the prevention of deaths by accidental poisoning where the victim has taken the poison in mistake for medicine Mr W T Hills of 12, Marine terrace Margate has submitted to us a device consisting of a sheath, made to fit any shaped bottle on which is a clock dial with movable hands An annular opening at the base of one of the hands indicates the interval, in hours, at which the medicine is to be given while the hands can be set for the time at which the next dose is to be taken The inventor contends that if medicines were always kept in such a sheath-covered bottle it would amount to criminal negligence if accident ensued when they were given from any other kind of bottle Owing to the surface of the sheath, he adds and its general physical properties being in sharp contrast to those of a glass bottle, the medicine bottle would be recognisable instantly by touch and could be found in the dark That the device costs little to manufacture is a real argument in its favour otherwise it possesses no advantages over other contrivances with a similar object The specimen sheath sent to us is made of celluloid and ordinary celluloid paraphernalia should not be multiplied in the sick room

NECESSITOUS LADIES' HOLIDAY FUND

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE West London Hospital, Hammersmith road, W

MONDAY—3 P.M., Medical and Surgical Clinics. X Rays Mr Gray: Operations Mr. B Harman Diseases of the Eye Dr Simson Diseases of Women.

TUESDAY—3 P.M., Medical and Surgical Clinics X Rays Mr Baldwin: Operations Dr Banks Davis: Diseases of the Throat, Nose and Ear Dr Perry: Diseases of the Skin.

WEDNESDAY—10 A.M., Dr Saunders: Diseases of Women Dr Banks Davis: Operations of the Throat Nose and Ear 2 P.M. Medical and Surgical Clinics. X Rays. Mr Pardoe Operations Dr Simson: Diseases of Women.

THURSDAY—2 P.M., Medical and Surgical Clinics X Rays. Mr Gray Operations Mr B Harman: Diseases of the Eye.

FRIDAY—10 A.M., Dr Simson Gynæcological Operations 2 P.M., Medical and Surgical Clinics. X Rays. Mr Baldwin: Operations. Dr Banks Davis Diseases of the Throat, Nose and Ear. Dr Perry: Diseases of the Skin.

SATURDAY—10 A.M., Dr Saunders Diseases of Children. Dr Banks Davis Operations of the Throat Nose and Ear Mr B Harman Eye Operations 2 P.M., Medical and Surgical Clinics X Rays Mr Pardoe Operations

NORTH EAST LONDON POST-GRADUATE COLLEGE Prince of Wales's General Hospital Tottenham N

MONDAY—Clinics—10.30 A.M. Surgical Out-patients (Mr R. Gillespie) 2.30 P.M., Medical Out-patients (Dr T R. Whipham) Gynæcological Out-patients (Dr Bainbridge). 3 P.M. Medical In-patients (Dr E. M. Leslie).

TUESDAY—2.30 P.M., Surgical Operations (Mr Carson) Clinics—Medical Out-patients (Dr A. G Auld) Surgical Out-patients (Mr Howell Evans) Nose Throat and Ear Out-patients (Mr C H. Hayton) Radiography (Dr McCalle) 3.30 P.M. Medical In-patients (Dr A. J Whiting)

WEDNESDAY.—Clinics—2.30 P.M. Throat Operations (Mr C H. Hayton) Children Out-patients (Dr T. R. Whipham) Eye Out-patients (Mr R. P Brooks) Skin Out-patients (Dr H. W Barber). 3.30 P.M., Eye Operations (Mr R.P Brooks)

THURSDAY—2.30 P.M., Gynæcological Operations (Dr A. E. Giles) Clinics—Medical Out-patients (Dr A. J Whiting) Surgical Out-patients (Mr Carson) Radiography (Dr McCalle) 3 P.M., Medical In-patients (Dr R. M. Leslie).

FRIDAY—2.30 P.M. Surgical Operations (Mr Howell Evans) Clinics—Medical Out-patients (Dr A. G Auld) Surgical Out-patients (Mr R. Gillespie) Eye Out-patients (Mr R.P Brooks)

THE THROAT HOSPITAL, Golden-square W

MONDAY—5.15 P.M., Special Demonstration on Selected Cases.

THURSDAY—5.15 P.M., Clinical Lecture

BOOKS, ETC., RECEIVED

ALLEN GEORGE AND UNWIN London
War Time Silhouettes By Stephen Hudson. Price 2s 6d net.
Deeper Causes of the War By Emile Hovelaque With preface by Sir Walter Raleigh. Price 2s 6d net

BAILLIERE, TINDALL, AND COX London.
Aids to Obstetrics By S Nall, B.A. M.B Cantab., M.R.C.P Revised by C. J. A Longridge M.D Vict., F.R.C.S Eng., M.R.C.P Lond. Eighth edition. Price 2s 6d net
Aids to Bacteriology By C G Moore M.A. Cantab. F.I.C., and W Partridge F.I.C Third edition Price 2s 6d net

BENGAL SECRETARIAT BOOK DEPOT Calcutta.
Catalogue of the Pathological Museum Medical College Calcutta. By J F P McConnell, M.B M.C M.R.C.S Eng. Revised by Leonard Rogers M.D., F.R.C.P., B.S F.R.C.S I.M.S. Vol I £1 1 Vol II., 15s 6d.

BLAKISTON (P) SON AND CO Philadelphia.
A Manual of Gynæcology and Pelvic Surgery for Students and Practitioners. By Roland S. Skeel A.M., M.D M.D Price 3s net.

CHAPMAN AND HALL, London
The War and the Soul By Percy E J Campbell Price 5s net
The Declining Birth-rate Its Causes and Effects Price 1s 6d net.

GENERATION PRESS CO., Adelphi-street W C
Fit Children On Education Misgovernment and Destiny By Alison Vardey Price 2s 6d net

HENEMANN WILLIAM London
Diseases of Women A Handbook for Students and Practitioners By Sir John Bland Sutton F.R.C.S Eng., LL.D and Arthur Giles M.D B.Sc Lond. F.R.C.S Seventh edition Price 15s net

LIPPINCOTT COMPANY London and Philadelphia.
Treatise on Fractures By John B Roberts A.M M.D F.A.C.S and James K. Kelly A.M., M.D Price 25s net
International Clinics. Edited by H R M Landis M.D Philadelphia with collaborators C H May M.D S. William Osler F.R.S and others Vol I-II Sixth series Price 8s net per vol.

LACHLAN AND CO London
Man-in Adjudre Mechanism. By George W Crile F.A.C.S Foreword by James Ewing A.B Price 2s 6d net
Discovery of the Soul and Science of Science By E A Gregory Price 1s net

MURRAY JOHN London
Sed Quis Custodiet Ipsos Custodes? Drug Dotting in France Price 2s 6d net

OXFORD UNIVERSITY PRESS, London and HARVARD UNIVERSITY PRESS New Haven Conn. and New York City
Physics of the Atmosphere By Frank P Underhill Price 10s 6d net

PANINI OFFICE Bahadurganj, Allahabad
Diet in Treatment of Diabetes. By B D Basu, Major I M S (retired) Seventh edition Price Rs 1-8.

PUTNAM'S (G P) SONS London and New York.
The People Who Run Refugees in Russia. By Vladimir Thurman. Price 2s 6d net

ROUTLEDGE GEORGE AND SONS London
Food Values What They Are and How to Calculate Them By Margaret McKillop. Price 1s net

The following magazines, journals, &c., have been received:—Therapeutic Gazette. British Journal of Children's Diseases. Interstate Medical Journal Saint Paul Medical Journal. British Dental Journal British Journal of Dental Science British Journal of Inebriety Pereira Hygiene Archives of Internal Medicine American Journal of Eugenics Biometrika Practitioner Medical Journal of South Africa. Indian Medical Record Annales de Gynécologie et d'Obstétrique Homœopathic Record Indian Journal of Medical Research Dominion Medical Monthly

EDITORIAL NOTICES

It is most important that communications relating to the *Editorial business of* THE LANCET should be addressed exclusively "TO THE EDITOR" and not in any case to any gentleman who may be supposed to be connected with the Editorial staff It is urgently necessary that attention should be given to this notice

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office

Lectures, original articles and reports should be written on one side of the paper only *and when accompanied by illness it is requested that the name of the author and if possible of the article, should be written on the blocks to facilitate identification.*

Letters whether intended for insertion or for private information must be authenticated by the names and addresses of their writers—not necessarily for publication

We cannot prescribe or recommend practitioners

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor"

Letters relating to the publication sale and advertising departments of THE LANCET should be addressed "To the Manager"

We cannot undertake to return MSS not used.

MANAGER'S NOTICES

THE INDEX AND TITLE-PAGE TO THE LANCET.

January to June, 1916

In view of the Government restrictions upon the supply of paper and the shortage of paper quite apart from these restrictions the Index and the Title-page to the volume of THE LANCET which was completed with the issue of June 24th have been printed separately and copies are being supplied gratis to those subscribers who have already intimated to us their wish to receive them Other subscribers will be similarly supplied so long as the stock remains unexhausted on application to the Manager THE LANCET Office 423, Strand London W.C Such application should please be sent in at once.

Volumes and Cases

VOLUMES for the first half of the year 1916 will be ready shortly Bound in cloth gilt lettered price 16s, carriage extra

Cases for binding the half year's numbers are now ready Cloth gilt lettered price 2s by post 2s 4d)

To be obtained on application to the Manager, accompanied by remittance

TO SUBSCRIBERS

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices 423 Strand London, W C are dealt with by them Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices and consequently inquiries concerning missing copies &c., should be sent to the Agent to whom the subscription is paid, and not to THE LANCET Offices

Subscribers by sending their subscriptions direct to THE LANCET Offices will ensure regularity in the despatch of the Journals and an earlier delivery than the majority of Agents are able to effect

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Friday mails to all parts of the world

BRISTOL ROYAL INFIRMARY —House Surgeons and House Physicians Salary at rate of £120 per annum with board &c.

BROMLEY EDUCATION COMMITTEE —School Medical Officer Salary £300 per annum

BURTON-ON TRENT COUNTY BOROUGH —Temporary Assistant Medical Officer Salary £300 per annum

BURY INFIRMARY —Junior House Surgeon Salary £150 per annum with board &c.

CAMBRIDGE ADDENBROOKE'S HOSPITAL.—House Surgeon Salary £250 per annum with board &c

DEVON AND CORNWALL SANATORIUM Didworthy South Brent —Locum Tenens for four weeks Salary 6 guineas per week

GREAT NORTHERN CENTRAL HOSPITAL, Holloway road N —House Surgeon for six months Salary at rate of £100 per annum with board &c

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton —House Physician for six months Salary 30 guineas

HULL, VICTORIA HOSPITAL FOR SICK CHILDREN —Female House Surgeon Salary £100 per annum with board &c

KIRKBURTON STORTHES HALL ASYLUM near Huddersfield —Locum Tenens Salary £7 7s per week, with board, &c.

LEAMINGTON SPA, WARNEFORD GENERAL HOSPITAL.—Junior Resident Medical Officer Salary £150 per annum with board, &c

LIVERPOOL, BROWNLOW HILL INSTITUTION —Female Resident Assistant Medical Officer Salary at rate of £300 per annum with rations &c

LONDON TEMPERANCE HOSPITAL, Hampstead road N W —Assistant Resident Medical Officer for six months Salary at rate of £120 per annum with board &c Also Surgical Registrar Salary at rate of 40 guineas per annum

LONDON THROAT HOSPITAL, 204 Great Portland street W —House Surgeon Salary £50 per annum

MANCHESTER CITY —Medical Officer Salary £350 per annum

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN Park place Cheetham Hill road —Female House Surgeon Salary £120 per annum with board &c

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST 7 Fitzroy square W —Female Clinical Assistants in Out patient Department

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC Queen square Bloomsbury W C —Junior House Physician Salary £100 per annum with board &c

NORTHAMPTON GENERAL HOSPITAL.—House Surgeon Salary £150 per annum, with board &c

PLYMOUTH SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Physician Salary £200 per annum with board &c

READING ROYAL BERKSHIRE HOSPITAL.—House Physician for six months Salary £250 per annum with board &c

ROYAL FREE HOSPITAL, Gray's Inn road W C —Third Resident Medical Officer in Officers Section Salary 14s per day &c

SCOTLAND NAVAL AUXILIARY HOSPITAL.—X Ray Operator and Anæsthetist

WEST RIDING OF YORKSHIRE MIDDLETON IN WHARFEDALE SANATORIUM near Ilkley —Assistant Medical Officer Salary £350 per annum

THE Chief Inspector of Factories Home Office London S W gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Dufftown Banff at Longton Lancs at Tibshelf Derby at Girvan Ayr at Rothwell Northampton at King's Lynn Norfolk and at Swansea Glamorgan

Births, Marriages, and Deaths.

BIRTHS

BIRKS —On June 26th at Harpur place Bedford the wife of Guy Thornton Birks M B Cantab of a son

CHETWOOD —On June 27th at Montgomery road Sharrow Sheffield to Dr and Mrs Thomas Chetwood a daughter

HOLMES —On June 19th at University road Belfast the wife of T S Holmes M Ch F R C S Eng of a son

HUTCHINSON —On June 28th at Poona India the wife of Major F H G Hutchinson I M S of a son

LEA WILSON —On June 24th at Beauchamp-avenue, Leamington Spa the wife of Captain B Lea Wilson R A M C of a son

MAYOU —On June 24th at Pidingleuse street W the wife of M S Mayou F R C S of a daughter

REILLY —On July 1st at 314 Commercial road Stepney E the wife of Jerome J Reilly M D of a daughter

SYMONDS —On June 24th at Wykeham House Oxford to Captain C P Symonds R A M C and Mrs Symonds —a son

WILLIAMS —On June 30th at Devonshire-road W the wife of Gwynne Williams Captain R A M C (T) of a son

MARRIAGES

GOFFE—POWELL.—On Saturday July 1st at Kings Weigh House Church London W by the father of the bride Francis George Goffe M D B S Lond Senior Assistant Medical Officer of the Eastern Hospital Tottenham son of the late John Bowham Goffe Esq J P of Port Maria Jamaica to Irina Mary Powell M B B S Lond elder daughter of the Rev Edward Thomas Powell M A of Sutton Surrey

DEATHS

BUXTON —On June 30th at Fenton Tamworth Thomas Buxton L R C P L R M M R C S in his 84 year

DIXON —On July 2nd of pneumonia at Lord Cross Hospital Malta G H Melville Dixon M D L R A M C aged 37 years

FURNISS —On June 30th at The Veranda Hayling Island Frank Lewis Furniss M R C S Eng late of Tavistock Devon West Norwood in his 64 year

FYFE —On June 24th at Dover John Henry Fyfe M B C M L R C P I aged 61 years

TATE —On July 3rd at 1 Queen Anne street Cavendish square W Walter W H Tate M D F R C P Fellow emeritus of St Andrews West Norwood of Saturday 8th inst at 2 p.m.

N B —A fee of 5s is charged for insertion of Births Marriages and Deaths

Notes, Short Comments, and Answers to Correspondents

THE PRIVATE REMOVAL OF SICK OR WOUNDED FROM ABROAD

To the Editor of THE LANCET

SIR —A sick or wounded man lying in a military hospital abroad may have friends who would be glad to let him home themselves or they might like to depute the mission to a medical man, rather than await the invalid's arrival by a hospital convoy

Is it permissible for a civilian to visit a patient at a military hospital abroad and possible to obtain the consent of the authorities to the man's removal as an ordinary traveller? I am, Sir, yours faithfully

July 3rd, 1916 M D

* Every case would entail a separate application for permission and freedom of travel is necessarily largely abolished for civilians —ED L

A DISTINCTIVE MEDICINE BOTTLE.

IF only for the reason that it emphasises a need, we welcome any invention that has for its object the prevention of deaths by accidental poisoning where the victim has taken the poison in mistake for medicine Mr W F Hills of 12, Marine terrace Margate has submitted to us a device consisting of a sheath, made to fit any shaped bottle on which is a clock dial with movable hands An annular opening at the base of one of the hands indicates the interval, in hours, at which the medicine is to be given while the hands can be set for the time at which the next dose is to be taken The inventor contends that if medicines were always kept in such a sheath-covered bottle it would amount to criminal negligence if accident ensued when they were given from any other kind of bottle Owing to the surface of the sheath, he adds and its general physical properties being in sharp contrast to those of a glass bottle, the medicine bottle would be recognisable instantly by touch and could be found in the dark That the device costs little to manufacture is a real argument in its favour otherwise it possesses no advantages over other contrivances with a similar object The specimen sheath sent to us is made of celluloid and ordinary celluloid paraphernalia should not be multiplied in the sick room

NECESSITOUS LADIES HOLIDAY FUND

To the Editor of THE LANCET

SIR —Much self sacrificing help has been given to other charities to meet the needs this awful war has involved while the poor ladies are likely to be overlooked and yet no class has suffered so pitiably as the poorer gentry through loss of work and therefore of money

Any contributions sent to me at this address will be thankfully acknowledged and distributed

I am, Sir your obedient servant

CONSTANCE HILL

48 Upper Berkeley street London W June 30th 1916

THE DESTRUCTION OF COCKROACHES

To the Editor of THE LANCET

SIR —With reference to recent correspondence in your columns on this subject may I call the attention of your readers to a book Some New and Interesting Uses for Sulphur Dioxide by Dr W Melville Davis medical superintendent of the Booth Steamship Company Limited recently published by John Wright and Sons Limited It deals with various points among which are considered giving their life history and methods of destruction It is a very well worth reading and is one to which in my official capacity I am always referring

I am Sir your faithfully

July 4th 1916 D H H

METEOROLOGICAL READINGS

(Taken daily at 8 a.m. by Stevens's Instrument)

THE LANCET Office July

Date	Barometer reduced to sea level and 32° Fahr	Direction of Wind	Extreme Heat	Mean Temperature	Mean Dew Point	Mean Humidity	Mean Ozone	Rainfall	Remarks
June 30	29.[illegible]	W	0.02	127	[illegible]	[illegible]	[illegible]	[illegible]	C [illegible]
July 1	[illegible]	S W			4	[illegible]	[illegible]	[illegible]	C [illegible]
2	[illegible]	S W	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	C [illegible]
3	[illegible]	S	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	C [illegible]
4	29.[illegible]	S	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	C [illegible]
5	29.[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	C [illegible]
6	29.[illegible]	W		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith road W

MONDAY —2 P.M., Medical and Surgical Clinics X Rays Mr Gray: Operations Mr B Harman Diseases of the Eye Dr Simson: Diseases of Women.

TUESDAY —2 P M., Medical and Surgical Clinics X Rays Mr, Baldwin: Operations Dr Banks Davis: Diseases of the Throat, Nose, and Ear Dr Pernet: Diseases of the Skin

WEDNESDAY —10 A.M., Dr Saunders: Diseases of Women Dr Banks Davis: Operations of the Throat Nose and Ear 2 P.M., Medical and Surgical Clinics X Rays Mr Pardoe: Operations Dr Simson: Diseases of Women.

THURSDAY —2 P.M. Medical and Surgical Clinics X Rays Mr Gray: Operations Mr B Harman: Diseases of the Eye

FRIDAY —10 A.M., Dr Simson: Gynæcological Operations 2 P.M., Medical and Surgical Clinics X Rays Mr Baldwin: Operations Dr Banks Davis: Diseases of the Throat, Nose, and Ear Dr Pernet: Diseases of the Skin.

SATURDAY —10 A.M. Dr Saunders: Diseases of Children Dr Banks Davis: Operations of the Throat, Nose and Ear Mr B Harman: Eye Operations 2 P.M Medical and Surgical Clinics X Rays Mr Pardoe: Operations

NORTH EAST LONDON POST-GRADUATE COLLEGE Prince of Wales's General Hospital Tottenham N

MONDAY —Clinics:—10.30 A.M Surgical Out-patients (Mr B Gillespie) 2.30 P.M., Medical Out patients (Dr T R Whipham): Gynæcological Out-patients (Dr Banister) 3 P M Medical In patients (Dr R M Leslie)

TUESDAY —2.30 P M Surgical Operations (Mr Carson) Clinics:—Medical Out patients (Dr A. G Auld) Surgical Out patients (Mr Howell Evans); Nose Throat, and Ear Out-patients (Mr C H. Hayton) Radiography (Dr Metcalfe) 3.30 P.M. Medical In patients (Dr A. J Whiting)

WEDNESDAY —Clinics —2.30 P.M. Throat Operations (Mr C H. Hayton) Children Out-patients (Dr T R. Whipham) Eye Out-patients (Mr R. P Brooks) Skin Out-patients (Dr H. W Barber) 3.30 P.M., Eye Operations (Mr R P Brooks)

THURSDAY —2.30 P.M Gynæcological Operations (Dr A. E Giles) Clinics:—Medical Out-patients (Dr A. J Whiting); Surgical Out-patients (Mr Carson) Radiography (Dr Metcalfe) 3 P.M. Medical In patients (Dr R. M Leslie)

FRIDAY —2.30 P.M. Surgical Operations (Mr Howell Evans) Clinics:—Medical Out-patients (Dr A. G Auld) Surgical Out-patients (Mr B Gillespie) Eye Out-patients (Mr R. P Brooks)

THE THROAT HOSPITAL Golden square, W

MONDAY —5.15 P.M., Special Demonstration of Selected Cases

THURSDAY —5 15 P M. Clinical Lecture

BOOKS, ETC, RECEIVED

ALLEN, GEORGE, AND UNWIN London
War Time Silhouettes By Stephen Hudson Price 3s 6d net.
Deeper Causes of the War By Emile Hovelaque With preface by Sir Walter Raleigh Price 2s 6d net

BAILLIÈRE, TINDALL, AND COX, London
Aids to Obstetrics By S Nall B A. M.B. Cantab., M R C P Revised by C. J N Longridge, M D Vict, F R.C S Eng M R.C P Lond Eighth edition. Price 2s 6d net.
Aids to Bacteriology By C G Moor M.A. Cantab F I C and W Partridge F I C Third edition Price 3s 6d net

BENGAL SECRETARIAT BOOK DEPÔT Calcutta
Catalogue of the Pathological Museum Medical College Calcutta By J F P McConnell M B M C M R C S Eng Revised by Leonard Rogers, M D F.R.C P B S F R C S I M S Vol I £1 1s Vol II 18s 9d.

BLAKISTON'S (P) SONS AND CO Philadelphia
A Manual of Gynæcology and Pelvic Surgery for Students and Practitioners. By Roland R Skeel A M M S M D Price $3 net.

CHAPMAN AND HALL, London
The War and the Soul By Rev R J Campbell Price 6s net
The Declining Birth rate Its Causes and Effects Price 10s 6d. net

GENERATION PRESS Co 1 Adelaide-street W C
Fool Culture: On Education Misgovernment and Destiny By Kirton Varley Price 2s 6d. net

HEINEMANN WILLIAM London
Diseases of Women A Handbook for Students and Practitioners By Sir John Bland Sutton F R C S Eng LL.D and Arthur Giles M D B Sc. Lond F R.C S Seventh edition Price 15s net

LIPPINCOTT COMPANY London and Philadelphia.
Treatise on Fractures By John B Roberts, A.M M D F A C S and James A Kelly A M M D Price 25s net
International Clinics Edited by H R M Landis M D Philadelphia with collaboration of C H Mayo M D Sir William Osler F R S and others Vol I -II Sixth series Price 35s net per year of four vols

MACMILLAN AND CO London
Man—An Adaptive Mechanism By George W Crile F A C S Edited by Annette Austin A B Price 10. 6d net
Discovery: Or the Spirit and Service of Science By R A Gregory Price 5s net

MURRAY JOHN London
Red Cross and Iron Cross By a Doctor in France Price 2s 6d

OXFORD UNIVERSITY PRESS London and YALE UNIVERSITY PRESS New Haven Conn. and New York City
Physiology of the Amino Acids By Frank P Underhill Ph D Price 6s net

PANINI OFFICE, Bahadurganj Allahabad
Dietetic Treatment of Diabetes By B D Basu Major, I M S (retired) Seventh edition Price Rs 1-8.

PUTNAM'S (G P) SONS London and New York.
The People Who Run Refugees in Russia By Violetta Thurstan Price 2s 6d net.

ROUTLEDGE, GEORGE AND SONS London
Food Values What They Are and How to Calculate Them By Margaret McKillop Price 1s net

The following magazines, journals, &c., have been received —
Therapeutic Gazette British Journal of Children's Diseases, Interstate Medical Journal Saint Paul Medical Journal British Dental Journal British Journal of Dental Science British Journal of Inebriety Revue d Hygiene Archives of Internal Medicine American Journal of Roentgenology Biometrika Practitioner Medical Journal of South Africa Indian Medical Record Annales de Gynecologie et d Obstetrique Homœopathic Record Indian Journal of Medical Research Dominion Medical Monthly

EDITORIAL NOTICES

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR" and not in any case to any gentleman who may be supposed to be connected with the Editorial staff It is urgently necessary that attention should be given to this notice

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office

Lectures, original articles, and reports should be written on one side of the paper only, *and when accompanied by blocks it is requested that the name of the author, and if possible of the article, should be written on the blocks to facilitate identification*

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication

We cannot prescribe or recommend practitioners

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor"

Letters relating to the publication, sale, and advertising departments of THE LANCET should be addressed "To the Manager"

We cannot undertake to return MSS not used

MANAGER'S NOTICES

THE INDEX AND TITLE-PAGE TO THE LANCET.

January to June, 1916

IN view of the Government restrictions upon the supply of paper and the shortage of paper quite apart from these restrictions, the Index and the Title-page to the volume of THE LANCET which was completed with the issue of June 24th have been printed separately, and copies are being supplied gratis to those subscribers who have already intimated to us their wish to receive them Other subscribers will be similarly supplied so long as the stock remains unexhausted, on application to the Manager THE LANCET Office, 423, Strand, London, W.C Such application should please be sent in at once

Volumes and Cases

VOLUMES for the first half of the year 1916 will be ready shortly Bound in cloth, gilt lettered price 16s, carriage extra

Cases for binding the half year's numbers are now ready Cloth gilt lettered, price 2s, by post 2s 4d)

To be obtained on application to the Manager, accompanied by remittance

TO SUBSCRIBERS

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices 423 Strand London, W C, are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices and consequently inquiries concerning missing copies, &c should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices

Subscribers by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Friday mails to all parts of the world

BRISTOL ROYAL INFIRMARY —House Surgeons and House Physicians Salary at rate of £120 per annum with board &c

BROMLEY EDUCATION COMMITTEE.—School Medical Officer Salary £300 per annum

BURTON ON TRENT COUNTY BOROUGH —Temporary Assistant Medical Officer Salary £300 per annum

BURY INFIRMARY —Junior House Surgeon Salary £150 per annum with board &c.

CAMBRIDGE ADDENBROOKE'S HOSPITAL.—House Surgeon Salary £250 per annum with board &c

DEVON AND CORNWALL SANATORIUM Didworthy South Brent —Locum Tenens for four weeks Salary 6 guineas per week

GREAT NORTHERN CENTRAL HOSPITAL Holloway road N —House Surgeon for six months Salary at rate of £100 per annum with board &c

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton —House Physician for six months Salary 30 guineas

HULL, VICTORIA HOSPITAL FOR SICK CHILDREN —Female House Surgeon Salary £100 per annum with board &c

KIRKBURTON STORTHES HALL ASYLUM near Huddersfield —Locum Tenens Salary £7 7s per week with board &c

LEAMINGTON SPA WARNEFORD GENERAL HOSPITAL.—Junior Resident Medical Officer Salary £150 per annum with board &c

LIVERPOOL, BROWNLOW HILL INSTITUTION —Female Resident Assistant Medical Officer Salary at rate of £300 per annum with rations, &c

LONDON TEMPERANCE HOSPITAL, Hampstead road N W —Assistant Resident Medical Officer for six months. Salary at rate of £120 per annum with board &c Also Surgical Registrar Salary at rate of 40 guineas per annum

LONDON THROAT HOSPITAL, 204 Great Portland street W —House Surgeon Salary £50 per annum

MANCHESTER CITY —Medical Officer Salary £350 per annum

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN Park place Cheetham Hill road —Female House Surgeon Salary £120 per annum with board &c

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST 7 Fitzroy square W —Female Clinical Assistants in Out patient Department

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC Queen square Bloomsbury W C —Junior House Physician Salary £100 per annum with board &c

NORTHAMPTON GENERAL HOSPITAL —House Surgeon Salary £150 per annum, with board &c

PLYMOUTH SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Physician Salary £200 per annum with board &c

READING ROYAL BERKSHIRE HOSPITAL.—House Physician for six months Salary £250 per annum with board &c

ROYAL FREE HOSPITAL, Gray's Inn road W C —Third Resident Medical Officer in Officers Section Salary 14s per day &c

SCOTLAND NAVAL AUXILIARY HOSPITAL.—X Ray Operator and Anæsthetist

WEST RIDING OF YORKSHIRE MIDDLETON IN WHARFEDALE SANATORIUM near Ilkley —Assistant Medical Officer Salary £300 per annum

THE Chief Inspector of Factories Home Office London S W gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Dufftown Banff at Longton Lancs at Tibshelf Derby at Girvan Ayr at Rothwell Northampton at King's Lynn Norfolk and at Swansea Glamorgan

Births, Marriages, and Deaths.

BIRTHS

Notes, Short Comments, and Answers to Correspondents

THE PRIVATE REMOVAL OF SICK OR WOUNDED FROM ABROAD

To the Editor of THE LANCET

SIR —A sick or wounded man lying in a military hospital abroad may have friends who would be glad to fetch him home themselves or they might like to depute the mission to a medical man, rather than await the invalid's arrival by a hospital convoy

Is it permissible for a civilian to visit a patient at a military hospital abroad and possible to obtain the consent of the authorities to the man's removal as an ordinary traveller? I am, Sir, yours faithfully

July 3rd, 1916 M D

*** Every case would entail a separate application for permission, and freedom of travel is necessarily largely abolished for civilians —ED L

A DISTINCTIVE MEDICINE BOTTLE

IF only for the reason that it emphasises a need we welcome any invention that has for its object the prevention of deaths by accidental poisoning where the victim has taken the poison in mistake for medicine Mr W F Hills of 12, Marine terrace Margate has submitted to us a device consisting of a sheath, made to fit any shaped bottle on which is a clock dial with movable hands An annular opening at the base of one of the hands indicates the interval, in hours at which the medicine is to be given while the hands can be set for the time at which the next dose is to be taken The inventor contends that if medicines were always kept in such a sheath-covered bottle it would amount to criminal negligence if accident ensued when they were given from any other kind of bottle Owing to the surface of the sheath, he adds and its general physical properties being in sharp contrast to those of a glass bottle the medicine bottle would be recognised instantly by touch and could be found in the dark That the device costs little to manufacture is a real argument in its favour otherwise it possesses no advantages over other contrivances with a similar object The specimen sheath sent to us is made of celluloid and ordinary celluloid paraphernalia should not be multiplied in the sick room

NECESSITOUS LADIES HOLIDAY FUND

To the Editor of THE LANCET

SIR —Much self sacrificing help has been given to other charities to meet the needs this awful war has involved while the poor ladies are likely to be overlooked and yet no class has suffered so pitiably as the poorer gentry through loss of

An Inquiry

INTO

THE NATURAL HISTORY OF SEPTIC WOUNDS

By KENNETH GOADBY, M.R.C.S., L.R.C.P. LOND., D.P.H. CANTAB.,

BACTERIOLOGICAL SPECIALIST ROYAL HERBERT HOSPITAL, WOOLWICH
LECTURER ON BACTERIOLOGY NATIONAL DENTAL HOSPITAL, ETC.

(A Report in three Sections to the Medical Research Committee.)

(WITH ILLUSTRATIVE PLATE.)

SECTION I.—SINUSES AND SINUS FORMATION

Scope of Inquiry

An attempt has been made to study the bacteriological flora of the wounds from the moment of admission to hospital and subsequently through the various stages of the illness, correlating the bacteriological knowledge with the clinical symptoms, surgical treatment, and sequelæ. The condition of the blood was also studied in relation to the degree and variety of sepsis and particular attention given to the benefit or otherwise of the use of bacterial vaccines. As the inquiry progressed certain other problems related to the persistence of unhealed wounds with sinus formation and the appearance of general disturbance with secondary attacks of fever and inflammation often associated with trivial surgical interference with the wound, demanded special attention. The inquiry is divided into three main lines of research necessitating a division of the report into three sections, mutually interdependent—namely, (1) Sinuses and sinus formation, (2) Vaccine therapy and wound infection, (3) General tissue reactions in wound infection.

The following schedule indicates the scheme by which the data of the report were obtained.

1. *Bacterial flora and clinical symptoms of various degrees of injury* which have been classified as far as is possible to do so into four classes. (*a*) Simple flesh wounds. (*b*) Flesh wounds with considerable damage and bruising to the soft parts but without definite bone injury, as determined by radiographic examination. (*c*) Wounds with bone injury, compound comminuted fractures, &c. (*d*) Wounds involving joints with or without fracture of bone, abdominal wounds, skull and spinal wounds.

2. *A critical inquiry into the use of bacterial vaccines as an adjunct to other methods of treatment.*—The cases for this part of the investigation were selected in pairs conforming to the four classes noted above. One case was given vaccine treatment and the other retained as a control. As far as possible cases from the same convoys were selected wounded on or about the same date and treated in the same ward under the same medical officer and general surgical procedure. When this was not possible great care was exercised to select cases with similar surgical conditions and subjected to the same treatment. The clinical history of the cases was carefully followed from the records kept in the wards, temperature charts, &c.

3. *Alteration in the blood in cases of wound infection* relating both to the corpuscular elements and the serum. Several points of diagnostic and prognostic importance have been studied and will be subsequently dealt with.

4. *The bacterial flora of sinuses and the bacterial factors* in so-called 'flares' following secondary operations. Many of the cases originally examined in the base hospital are transferred to an auxiliary hospital and are readmitted to the base hospital for further surgical treatment or for medical boards. The presence of sinuses and sequestra in many of these cases called for special attention and several important facts bearing on treatment have come to light and as the observations have extended over a considerable time the cases are representative of the general types of wound infection.

Bacteriological Methods

As the routine methods in use have been the same throughout the whole of my investigations a preliminary epitome of them will be given.

In every case films of the pus were examined microscopically stained by Gram's stain counterstained with dilute carbol fuchsin. In some instances further films were examined with Giemsa's stain and Muir's capsule stain.

Cultural Methods

The material (pus or other discharge) was collected before the wound was dressed by means of a sterile swab on a long stout wire, enabling the depth of the wound to be examined. In the case of closed cavities, sequestra, &c. a swab of the surgeon's wound was obtained before the cavity was entered and subsequently from the depth of the cavity, avoiding the external part of the wound. Portions of bone from sequestra, callus, pieces of muscle, and other tissue were also examined and a portion further submitted to histological examination. The material so obtained was inoculated on to the following media: (1) egg broth, (2) glucose formate broth, (3) minced autoclaved meat, (4) autoclaved milk, (5) gelatin. The milk, egg broth, and meat were heated and a layer of liquid paraffin poured on. For the sowings the original material was suspended in broth and inoculated (1) into the egg broth without previous heating, (2) heated to 60° C. for 15 minutes and sown in milk, (3) heated to 80° C. for 5 minutes and sown in meat, (4) on to the gelatin and glucose formate broth without heating. If plenty of the original material is present in the broth emulsion before sowing, especially blood and bits of tissue, the paraffin method was found to be reliable, and has rarely failed to give a good growth of all the organisms seen in the pus films. The results compared very favourably with those obtained by the anaerobic jar method, and the process is economical with regard to space. Subcultures on to paraffin covered media are not so satisfactory, and further subcultures and plates were treated in the anaerobe jar.

Preparations of the egg broth and glucose formate broth, meat and milk at 24–48 hours were stained by Gram and counterstained with carbol fuchsin, hanging-drop preparations were also examined when indicated. By these means an early general diagnosis is possible in 24–48 hours. The smear preparation can be used for provisional diagnosis. Thus a film showing Gram positive bacilli with no spores and the organisms surrounded by a capsule is evidence of infection with B. perfringens. Spore-forming Gram-positive bacilli with clostridial and subterminal spore formation indicate bacilli of the malignant œdema group, or of B. Rodella III. (Hibler IX.)

The further diagnosis is completed by examination of the cultures and films, &c., of the 48 hours growth thus:—

Egg-broth.—Cocci (streptococci, staphylococci), B. proteus, and B. malignant œdema produce a thick flocculent precipitate, when malignant œdema is present there may be black staining. B. perfringens alone produces no precipitation of egg broth. Evil putrefactive smell is caused by the malignant œdema group and B. Hibler groups not by B. perfringens, the latter only causing a butyric smell.

Milk.—B. perfringens produces a "stormy clot"—i.e., acid with evolution of gas which causes the clot to be broken up, it often adheres in torn fragments to the side of the tube and considerable contraction, at first suggesting peptonisation, occurs but no subsequent digestion of the clot takes place. Streptococci and staphylococci produce acid and occasionally clotting, no digestion. B. malignant œdema does not affect the milk in 24 hours and in the presence of rapidly growing perfringens not at all. Alone and in combination with B. perfringens digestion occurs slowly. Hibler IX. (Rodella III.) has a very slow peptonising effect.

Meat.—Streptococci and staphylococci have no marked action. B. perfringens group causes a red colouration, peptonisation and gas formation, and a smell of butyric acid but no putrefactive odour. Malignant œdema and B. Hibler produce peptonisation, malignant œdema blackening, isolated black patches in a reddish brown matrix are often seen, indicating B. perfringens and malignant œdema. Both malignant œdema and B. Hibler evolve putrid gases.

Glucose formate broth.—Aerobic [illegible] belonging to the coli and proteus group, staphyl[illegible] eptococci may be observed. gas formation [illegible] ence of either the coli or the prote[illegible] m the wound grow feebly on this [illegible] en found on the egg broth gro[illegible] the class of strep'ococci met wi[illegible] facultative anaerobes. B. per[illegible] hen many

Communications, Letters, &c, have been received from—

A.—Mr T H Attwater Lond Mr G F Aldous Plymouth Messrs Allen and Hanburys Lond. Dr Armley Ashkenny Basingstoke Addenbrookes Hospital, Cambridge Secretary Superintendent of Academie de Médecine Paris, Librarian of Dr F W Alexander Lond; Mr H F Armstrong Lond

B.—Mrs Blackie Lond Messrs Butterworth and Co, Lond Captain Andrew Barr A V C France Dr E B Jean Rouen; Bread and Reform League Hon Secretary of Messrs John Bale Sons and Danielsson Lond Bedford County Hospital, Bedford Secretary of British Medical Association Malta and Mediterranean Branch Valetta Hon Secretary of Dr N Bedwani Tabia British De-Tinning Co Birmingham Bristol Medical Library Hon Librarian of; British Medical Association Lond Deputy Medical Secretary of Dr Dudley Buxton, Lond Sir John Byers Belfast Messrs P B Burgoyne and Co Lond Messrs W H Bailey and Son Lond Sir John Broadbent Lond; Board of Education Secretary of Dr L L Burton Roblin Manitoba Burton-on Trent County Borough Town Clerk of; Bromley Education Committee Secretary of Dr D T Barry Cork Captain J A Bennett R A M C Bolton Infirmary and Dispensary Secretary of; British Thomson Houston Co Lond.; British Dentists Hospital Secretary of Dr Clement Branson Bournemouth

C.—Mr E Clark Jones Burbage Mr P Copeland Lond Captain L T Challenor R A M C (T) Camberwell Guardians Clerk to the Messrs Chapman and Hampton Bishops Stortford; Messrs Clement and Johnson Lond Dr H M Crake Calcutta Captain R Claremont R N Lond Captain John G Cooke R A M C France Church Army Lond Secretary of Messrs J and A Churchill Lond; Messrs Samson Clark and Co Lond Miss M Cashmore Lond Mr Sydney W Cole Cambridge Messrs W B Cowie and Co Edinburgh Central Midwives Board Secretary of Clerical Medical and General Life Assurance Society General Manager of; Mr F M Corner Lond Messrs Cutting and Underwood Lond Dr B M [illegible] Grantham and Co Reading Dr Edwin Goodall Whitchurch Dr W Graham Belfast Captain Ernest Glynn R A M C Liverpool, Captain E B Gunson R A M C Lond. General Register Office

H.—Mr W F Hills Margate Captain H R Hurry R A M C Dr E Rivaz Hunt, Brighton; Professor W D Halliburton Lond Lieutenant Colonel V Hurley A A M C Lond Mr J Smith Hill Lond Messrs Hoffman La Roche Lond; Home Office Factory Department Miss Evelyn Hay Turnberry Ayrshire

J.—Journal of the Royal Army Medical Corps Lond.

K.—Mr D W Kemp, Leith Kreochyle Co Lond Messrs Knight Frank and Rutley Lond Dr Anna Keilin Cambridge Messrs King and King Portsmouth Dr Robert Knox Lond Kopok Industrial Co Lond Messrs T Kerfoot and Co, Bardsley

L.—London Hospital Medical College Secretary of Dr T Laffan Cashel Mr H C Long Surbiton Mr J P Lockhart Mummery Lond Dr O Leyton Lond Mr J B Lamb Lond London School of Tropical Medicine Assistant Librarian of Liverpool Guardians Clerk to the; Captain Ross D Long R.A.M C France Major J C Holdich Leicester I M S Messrs H K Lewis and Co Lond London Throat Hospital Secretary of

M.—Mr D Maguire Metheringham; Dr R O Moon Lond Mr W J Midelton, Bournemouth Mrs Morison Edinburgh Mr Thos McLean Lond Mr J N W MacAllister Lond Mr W Martindale Lond Dr Angus G Macdonald Grenada Messrs J Menzies and Co Glasgow McGill University Medical Library Montreal Assistant Librarian of Medico-Chirurgical Library Sheffield Library Attendant of Mr J McDonagh Lond. Sir Robert Morant Lond; Maltine Manufacturing Co Lond Captain J G Moseley R A M C France Manchester Royal Infirmary Secretary of Metropolitan Hospital Sunday Fund, Secretary of Dr Irwin Moore Lond.; Flee Surgeon R C Munday R N Admiralty [illegible]

R.—Dr P Ravant Gravelines Major J W F Ralt I M S Royal Surrey County Hospital Guildford Secretary of Messrs Richardson and Co Lond Messrs Robertson and Scott Edinburgh Dr R J Rowlette Dublin; Royal Institution Secretary of Royal College of Surgeons Clerk of Royal Medical Benevolent Fund Lond Secretary of Dr Harold P Renton Oldham Royal College of Surgeons Edinburgh Royal Colleges of Physicians and Surgeons Secretary of

S.—St Helens County Borough Medical Officer of Health of Messrs Spiers and Pond Lond Solac, Ltd Lond Captain A Sutcliffe R A M C (T) Scientific Press Lond Dr G Sowden Lond Dr S Samuel Leeds Messrs W H Smith and Son Birmingham H M Stationery Office (Printing Branch) Lond Secretary of Society of Tropical Medicine and Hygiene Lond Fleet Surgeon H Spicer R N Mr J Q Simpson R A M C Aldershot Lieutenant H Spong R.A M C Catterick Sheffield Royal Infirmary Secretary of Professor W Stirling Manchester Dr F E Shipway Lond Dr Halliday Sutherland Lembroke Dr W H Symons Bath Mr H B. Saunders New York South London Hospital for Women Secretary of; Messrs Sells Lond

T.—Mr J Thin Edinburgh; Captain D C Thomas R.A.M.C. Mr Alfred E Terry Pell[illegible] True Temperance Association Lond Secretary of; Captain H P H Tracy R.A.M C D E F Mrs. F Thursby Lond Messrs C Tuckey and Co. Lond Theatrical Garden Party Committee of Mr L G Tris[illegible] Mr L L Thain Emyas Harold Dr Kenneth Taylor [illegible] Orangis

U.—U S Department of Labor Children's Bureau Washington Librarian of

V.—Victoria University of Manchester

W.—Mr G Wolstencroft Lond Messrs W Wood and Co New York Mr C Hamilton Whitford Plymouth Mr R Williams Bangor; Mr G H Wells Faversham Warneford General Hospital Leamington Spa Hon Governor of Messrs J Wright and Son Hulbert Messrs Jas Willing Lond West London Medico-Chirurgical Society Hon Secretary of; Mr T Waterston Montreal Wounded Allies Relief Committee Lieutenant Colonel J H Tull Walsh I M S Kingston

Letters, each with enclosure, are also acknowledged from—

A.—A. H W Anglo Russian Hospital Lond., Secretary of A. H G

B.—Dr D S Brackman Lond Mr J Butterworth Middleton Dr J M Barbour Ramsey Dr A. Berlyn Stoke on Trent Mr P Bauer Bradford Messrs Buchart and Rennet Aberdeen Messrs Chas Birchall, Liverpool Messrs Burroughs Wellcome and Co Lond Surgeon J D Byrd R.N Lond Dr J Linton Bogle Atherston B Boscombe Messrs T B Browne Lond. Belfast Corporation City Chamberlain of

C.—Mr H A Collins Croydon Church of England Temperance Society Lond Secretary of Carnegie Institute Washington Assistant Secretary of County Asylum Prestwich Clerk to the Mr J N Curwood Bromley Messrs E Cook and Co Lond Mr Colmer Yeovil; C C Messrs T Cook and Son Lond Dr T Carruthers Killarchan Messrs T Christy and Co Lond

D.—Messrs W Dawson and Sons Mundesley Sanatorium Medical Superintendent of

O.—O L. T

P.—Dr C I Pattison Sheffield Parke Davis and Co Lond Messrs C Pool and Co Lond Dr H R Phillips Lond Dr A A Parson Lond. Dr G E Peschell Dorchester D S Paraskevopoulos Telpolitza Pendyffryn Sanatorium Penmaenmawr Secretary of

R.—Rev R M Rees Llanelly Dr C Roper Par Station; Messrs Robinson and Sons Chester Captain D O Riddel R.A M C France; Royal Institute of Public Health Lond Secretary of Mr Roberts Hayling Island Dr M J Ryan, Cromer R. L.

S.—Rev W Sykes Melton Dr Durgananda Sen Milton Captain B G Sworder R.A M C South Devon and East Cornwall Hospital, Plymouth Secretary of Springfield House Asylum Ipswich Medical Superintendent of Messrs W H Smith and Son Lond Mr G K Stone Lond Lieutenant Colonel Sumner R.A.M.C

An Inquiry

INTO

THE NATURAL HISTORY OF SEPTIC WOUNDS

By KENNETH GOADBY, M.R.C.S., L.R.C.P. LOND., D.P.H. CANTAB.,

BACTERIOLOGICAL SPECIALIST ROYAL HERBERT HOSPITAL, WOOLWICH
LECTURER ON BACTERIOLOGY NATIONAL DENTAL HOSPITAL, ETC

(*A Report in three Sections to the Medical Research Committee*)

(WITH ILLUSTRATIVE PLATE)

SECTION I.—SINUSES AND SINUS FORMATION

Scope of Inquiry

An attempt has been made to study the bacteriological flora of the wounds from the moment of admission to hospital, and subsequently through the various stages of the illness, correlating the bacteriological knowledge with the clinical symptoms, surgical treatment, and sequelæ. The condition of the blood was also studied in relation to the degree and variety of sepsis and particular attention given to the benefit or otherwise of the use of bacterial vaccines. As the inquiry progressed certain other problems related to the persistence of unhealed wounds with sinus formation and the appearance of general disturbance with secondary attacks of fever and inflammation often associated with trivial surgical interference with the wound demanded special attention. The inquiry is divided into three main lines of research, necessitating a division of the report into three sections, mutually interdependent—namely, (1) Sinuses and sinus formation, (2) Vaccine therapy and wound infection, (3) General tissue reactions in wound infection.

The following schedule indicates the scheme by which the data of the report were obtained.

1. *Bacterial flora and clinical symptoms of various degrees of injury* which have been classified as far as is possible to do so into four classes. (*a*) Simple flesh wounds. (*b*) Flesh wounds with considerable damage and bruising to the soft parts but without definite bone injury, as determined by radiographic examination. (*c*) Wounds with bone injury, compound comminuted fractures, &c. (*d*) Wounds involving joints with or without fracture of bone, abdominal wounds, skull and spinal wounds.

2. *A critical inquiry into the use of bacterial vaccines as an adjunct to other methods of treatment.*—The cases for this part of the investigation were selected in pairs conforming to the four classes noted above. One case was given vaccine treatment and the other retained as a control. As far as possible cases from the same convoys were selected, wounded on or about the same date and treated in the same ward under the same medical officer and general surgical procedure. When this was not possible great care was exercised to select cases with similar surgical conditions and subjected to the same treatment. The clinical history of the cases was carefully followed from the records kept in the wards, temperature charts, &c.

3. *Alteration in the blood in cases of wound infection* relating both to the corpuscular elements and the serum. Several points of diagnostic and prognostic importance have been studied and will be subsequently dealt with.

4. *The bacterial flora of sinuses and the bacterial factors* in so-called "flares" following secondary operations. Many of the cases originally examined in the base hospital are transferred to an auxiliary hospital and are readmitted to the base hospital for further surgical treatment or for medical boards. The presence of sinuses and sequestra in many of these cases called for special attention, and several important facts bearing on treatment have come to light, and as the observations have extended over a considerable time the cases are representative of the general types of wound infection.

Bacteriological Methods

As the routine methods in use have been the same throughout the whole of my investigations a preliminary epitome of them will be given.

In every case films of the pus were examined microscopically stained by Gram's stain counterstained with dilute carbol fuchsin. In some instances further films were examined with Giemsa's stain and Muir's capsule stain.

Cultural Methods

The material (pus or other discharge) was collected before the wound was dressed by means of a sterile swab on a long stout wire, enabling the depth of the wound to be examined. In the case of closed cavities, sequestra, &c., a swab of the surgeon's wound was obtained before the cavity was entered and subsequently from the depth of the cavity, avoiding the external part of the wound. Portions of bone from sequestra, callus, pieces of muscle, and other tissue were also examined and a portion further submitted to histological examination. The material so obtained was inoculated on to the following media: (1) egg broth, (2) glucose formate broth, (3) minced autoclaved meat, (4) autoclaved milk, (5) gelatin. The milk, egg broth, and meat were heated and a layer of liquid paraffin poured on. For the sowings the original material was suspended in broth and inoculated (1) into the egg broth without previous heating, (2) heated to 60° C. for 15 minutes and sown in milk, (3) heated to 80° C. for 5 minutes and sown in meat, (4) on to the gelatin and glucose formate broth without heating. If plenty of the original material is present in the broth emulsion before sowing, especially blood and bits of tissue, the paraffin method was found to be reliable, and has rarely failed to give a good growth of all the organisms seen in the pus films. The results compared very favourably with those obtained by the anaerobic jar method, and the process is economical with regard to space. Subcultures on to paraffin covered media are not so satisfactory, and further subcultures and plates were treated in the anaerobe jar.

Preparations of the egg broth and glucose formate broth, meat and milk at 24–48 hours were stained by Gram and counterstained with carbol fuchsin, hanging-drop preparations were also examined when indicated. By these means an early general diagnosis is possible in 24–48 hours. The smear preparation can be used for provisional diagnosis. Thus a film showing Gram positive bacilli with no spores and the organisms surrounded by a capsule is evidence of infection with B. perfringens. Spore forming Gram positive bacilli with clostridial and subterminal spore formation indicate bacilli of the malignant œdema group, or of B. Rodella III (Hibler IX.).

The further diagnosis is completed by examination of the cultures and films, &c., of the 48 hours growth thus:—

Egg-broth.—Cocci (streptococci, staphylococci), B. proteus, and B. malignant œdema produce a thick flocculent precipitate, when malignant œdema is present there may be black staining. B. perfringens alone produces no precipitation of egg broth. Evil putrefactive smell is caused by the malignant œdema group and B. Hibler groups not by B. perfringens, the latter only causing a butyric smell.

Milk.—B. perfringens produces a "stormy clot"—i.e., acid with evolution of gas which causes the clot to be broken up, it often adheres in torn fragments to the side of the tube and considerable contraction, at first suggesting peptonisation, occurs, but no subsequent digestion of the clot takes place. Streptococci and staphylococci produce acid and occasionally clotting, no digestion. B. malignant œdema does not affect the milk in 24 hours, and in the presence of rapidly growing perfringens not at all. Alone and in combination with B. perfringens digestion occurs slowly. Hibler IX. (Rodella III.) has a very slow peptonising effect.

Meat.—Streptococci and staphylococci have no marked action. B. perfringens group causes a red colouration, peptonisation and gas formation, and a smell of butyric acid but no putrefactive odour. Malignant œdema and B. Hibler produce peptonisation, malignant œdema blackening, isolated black patches in a reddish brown matrix are often seen, indicating B. perfringens and malignant œdema. Both malignant œdema and B. Hibler evolve putrid gases.

Glucose formate broth.—Aerobic organisms belonging to the coli and proteus group, staphylococci and streptococci may be observed, gas formation points to the presence of either the coli or the proteus groups, streptococci from the wound grow feebly on this medium. They are more often found on the egg broth growing into long chains and the class of streptococci met with appear in the main to be facultative anaerobes. B. perfringens may grow for a time when many

aerobic organisms are present, it occasionally grows in the glucose formate broth but is easy to detect

Gelatin —Stab cultures on gelatin may show liquefaction in 24 hours This is usually due to the presence of the proteus group

For the purpose of diagnosis the following characters were relied upon —

Anaerobic Bacilli Group

(A) *B malignant œdema* —Gram positive, in old cultures three days or more Gram negative, motile spore forming obligatory anaerobic bacilli spores oval and round Spore formation very rapid central and subterminal, but always with a small portion of the bacillus beyond the spore in the latter case (Fig 1) Clostridial forms characteristic Egg-broth thick precipitate often yellow, meat black deposit meat peptonisation with disgusting putrefactive gas Woolly colonies on plating out, with white opalescent change in egg agar medium, serum and Dorset egg liquefied

(B) *B perfringens group* —Large Gram positive, often Gram negative, non motile bacilli, spore formation rarely seen except upon serum and egg medium without broth Tendency to stain irregularly on using Gram's black dots and bars, the latter may be parallel to the sides of the bacillus stain "Stormy clot" and acid and gas on milk No liquefaction of serum (Fig 2.) Glucose and lactose acid and gas Colonies smooth, not woolly

(C) *B Hibler IX (Rodella III)* —Slightly motile or non-motile Gram positive bacilli rapidly becoming Gram-negative Oval terminal spores general eccentric to the long axis of the organism The bacilli are often very long and may show double spore formation (Figs 3 and 4) Ordinarily a number of organisms with partially developed spores are seen in cultures (Fig 4) In these instances the area of spore formation stains a much deeper colour with Gram's stain than the remainder of the bacillus Peptonisation of meat with fœtid smell, slow peptonisation of milk Smooth colonies with slightly thickened crenated edge, not woolly

(D) *B necrosis* —A long non motile Gram negative slender and often pointed end bacillus growing with considerable difficulty No spores are formed Meat undergoes peptonisation, no gas and no clot or acid formed in milk Diffuse woolly colonies with long tangled thread formation

Aerobic Group

(A) *Coli group* —Lactose fermenting organisms Gram-negative non sporing motile, non liquefying The various members of this group are under examination and will be recorded in a later communication

(B) *Proteus group* —Non lactose fermenting organisms, motile Gram negative non sporing, gelatin rapidly liquefied, facultative anaerobic Milk digested without acid formation

(C) *Cocci group staphylococci streptococci*

B procyaneus was isolated on many occasions often appearing and disappearing in the wounds in a manner suggesting secondary or aerial infection although no other cases with blue pus were present in the ward There was no apparent co-relation between the clinical symptoms and the presence of this organism in any but a very limited number of cases The routine examination of the aerobic group was [illegible] on lactose bile salt mixtures the dilution method was followed surface smears being used only for studying the individual colonies of pure cultures Various anaerobic cocci especially an anaerobic streptococcus and an irregular coccus probably diplococcus magnus of Tissier were observed often mixed with the malignant œdema colonies (See Fig 4)

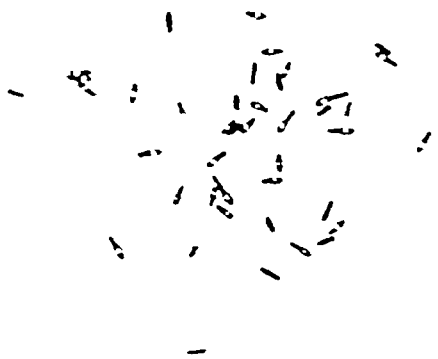
General Explanation of Tables I and II

In Tables I and II I have collected some of the more important facts relating to 77 cases of wound infection and sinus infection Of the cases of Table I 14 appear in Table II, but only in 2 are the dates of bacteriological examination the same

Table I is a record of the latest bacteriological examination that was made in the given case, while Table II gives the earliest examination made after the time of wounding Various intermediate examinations were made in many of the cases, but these details are omitted from the tables for the sake of clearness The tables show the bacterial flora met with in recently inflicted wounds and the organisms met with at long periods afterwards In Table I the bacteria found in 10 different closed cavity cases are also given In these instances the external wound was entirely healed over, and the operation was undertaken for some surgical reason other than the presence of a septic focus, in fact there were no evidences of any septic trouble In none of the cases was operation followed by reaction, febrile or local These cases are a curious control to the "sinus cases," many of which certainly more than 1 in 10 showed a febrile reaction with local symptoms of inflammation and it may well be that tissues still suppurating with an external open sinus are barely holding their own against the various bacterial agencies at work, whereas in the closed cavities the infecting organisms though not destroyed, are shut off from causing trouble by a wall of protective tissue

In addition to the B malignant œdema and B perfringens another anaerobic spore forming bacillus with end spores closely resembling the B tetani was isolated from 41 cases This organism originally described by Rodella and latterly carefully studied and described by Hibler as Bacillus IX has received little attention by recent observers as an organism common in the wounds In none of the 77 wound cases was B tetani isolated although organisms morphologically resembling it were common The original egg broth cultivations containing these end spore organisms were kept three or four weeks and then inoculated into animals in all suspected cases and in no instance did the animal develop symptoms of tetanus In 2 cases only of clinical tetanus have characteristic symptoms followed the injection of cultures in guinea pigs, neither of these cases is included in Tables I and II Dudgeon claims to have found B tetani in 11 out of 21 cases examined and makes a number of deductions from the fact Fleming states that he found B tetani in 22 cases out of 127 examined in the first seven days following injury and 5 out of 56 examined between the eighth and twentieth day Neither Dudgeon nor Fleming states the grounds of their diagnosis of B tetani, they make no mention of animal experiments which is regrettable On the other hand Dean and Mort observed the presence of B tetani in 4 cases out of 18 examined (the day of disease is not mentioned) In all 4 cases the inoculation of animals produced typical symptoms

FIG 1.



B malignant œdema (Koch) 48 hour egg-agar showing subterminal spores and typical clostridial forms. Stained Gram × 1000.

FIG 2

B perfringens (B fraenkel B welchii &c.) 24 hour glucose agar Stained Gram × 1000

FIG 3

B Hibler IX. (Rodella III) showing end spores double 72 hour glucose agar The culture is not pure a clostridial form of B malignant œdema is seen on the right at 3 o clock Stained Gram × 1000

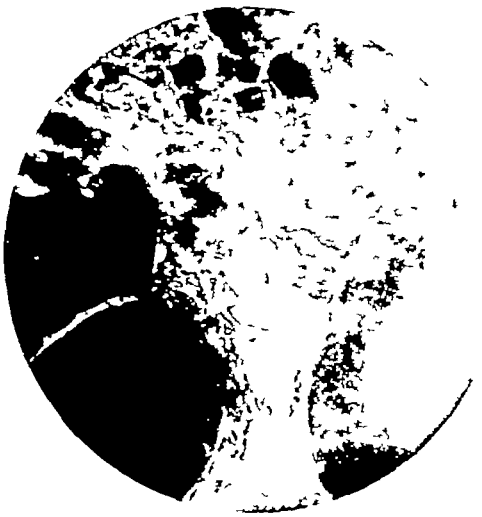
FIG 4

B Hibler IX (Rodella III) associated with large cocci end spores of bacillus in formation one double-ended sporing bacillus 48 hour glucose agar Stained Gram × 1000

FIG 5

Pus film from a septic wound showing numerous B perfringens and a few end spore organisms spores only partially formed and staining darkly One is seen at 3 o clock just above a pus cell Stained Gram fuchsin × 500

FIG 6



Tissue preparation from a case of acute gas gangrene. The upper part of the photograph shows the disintegrated muscle bundle the lateral part shows the muscle bundles only partially affected The bacilli are seen lying in the muscle bundles themselves " The left hand muscle bundle shows numerous sporing bacilli Gram-carmine × 500

Mr Kenneth Goadby The Natural History of Septic Wounds.

(The micro-photographs were taken by Mr Cyril Hill)

TABLE I.—*Sinus and Closed Cavity Cases*

Case No	Surgical condition.	Source of cultures	Day of disease	M O	P	It	Strep group	C group	Strep	Staph	Other	Vaccine	Result	Day of disease	Notes
1 58c	Plated c c f thigh	Sinus in thigh	302	–	–	–	+	–	–	+	—	Prot aut	Recovery		Vaccine commenced early 4 subsequent operations one followed by secondary hæmorrhage
2 18b	c c f thigh.		235	–	–	–	–	+	+	+	Pyoc.	—	Seq removed	225	Secondary hæmorrhage 237th day Recurrence fever 5 days duration
3 71c	c c f tibia, plated	Sinus in tibia, plate out	275	–	+	–	–	+	+	+	—	—	Sinus unhealed	562	Sinus curetted on several occasions no general but intense local reaction
4 31c	c c f radius, wired	Seq removed wire out	273	+	+	+	+	+	+	+	Pyoc.	4 inj only	No flare" 2nd op	273	Readmitted with sinus and seq Aut. strep vaccine Seq removed
5 47c	c.c.f humerus	Seq removed	269	+	+	+	+	+	+	+	—	+	No flare" seq	259	Seq contained all organisms found in wound on first examination (4th day)
6 68b	c c.f femur	Scraping from sinus	235	–	–	–	–	–	+	–	+	+	Under treatment		6 severe flares autog vaccine (streptococcus) 3 subsequent operations no temp rise
7 57c	c c.f tibia plated	Sinus in tibia, plate out	193	–	–	–	+	–	+	+	+	+	Recovered.		Two small operations to sinus followed by 'flare" vaccine operation successful.
8 9b	c c f tibia.	Sinus in tibia	189	–	+	–	+	+	+	+	+	Strep Prot	Death.	203	Streptococci in blood on 39th day severe bed sores on 150th day
9 70c	c.c f tibia	Sinus seq present	178	–	–	–	–	–	+	+	Pyoc.	+	Under treatment.		"
10 35c	c c f tibia, wired	Sinus to bone (tibia)	177	–	+	–	+	–	+	+	—	+	'	177	6 separate 'flares each following small operation to sinus which persists on 177th day
11 21c	c c f humerus wired	Sinus to bone (humerus)	136	–	–	–	+	–	+	–	+	—	Recovery		Slight general reaction following sinus scraping
12 72b	c c f shoulder	Sinus in upper arm	109	+	–	+	–	–	+	+	—	+			Severe reaction twice erysipelas round wound on removal of small bone fragment
13 86c	Sinus tibia to bone c c f	Sinus to bone (tibia)	176	–	+	–	+	–	+	+	Pyoc	—	'		Aut vaccine seq removed no rise of temp Considerable loss of bone in shaft of tibia.
14 82c	c c f radius	Sinus forearm to bone	3 mths	–	–	–	–	–	+	–	—	+	Under treatment.	..	
15 83b	Sinus thorax.	Sinus to rib	3 mths	–	+	+	+	–	+	+	+	—	Death	86	"
16 89c	c c f tibia	Sinus to bone (tibia)	4 mths	–	–	–	+	–	–	+	—	—	Recovery		Severe general and local reaction following sinus scraping
17 87c	c c.f femur	Sinus to bone.	3 mths	+	+	+	+	–	+	+	—	—	'		Acute gas gangrene followed opening up sinus and scraping
18 69b	c c.f femur and pelvis	Swab from sinus pelvis	91	–	+	–	+	+	+	+	—	+	'	..	
19 37b	c.c f femur and hip-joint plated	Sinus to hip joint	89	–	+	–	+	+	+	+	—	Strep. Prot	Under treatment.	..	Regular vaccine treatment from commencement 2 subsequent operations no flare"
20 55b	g s w ankle	Sinus through ankle-joint	70	–	+	–	+	+	+	+	—		Recovery		Gas gangrene, tetanus Second abscess great trochanter
21 10b	g.s w knee-joint	Sinus knee joint	56	–	+	+	+	+	+	+	—	'	'	..	Second operation followed by flare vaccine, two other operations no reaction or flare"
22 2b	g.s w sacral fracture involving spinal canal	Sinus into spinal canal	52	+	+	+	+	+	+	+	—	Strep	Death.	56	Spinal canal opened large abscess, and splintering of sacrum
23 12c	c c f both tibiæ plated	Scraping under plate	41	+	+	+	+	–	+	+	—	Perf Strep	Recovery		No reaction followed removal of plate and scraping bone
24 54c	c c f radius many r b	Sinus to bone (radius)	41	+	+	+	–	–	+	+	—	—	Death	48	Gas bubble in X ray photograph on 19th day General septicæmia
25 24a	Flesh wound calf	Sinus-scraping depths	52	+	–	–	+	–	+	+	—	Strep Prot	Recovery		Vaccine 3 doses transferred vaccine discontinued Wound broke down readmitted Vaccine again sinus curetted no reaction
26 19b	c c f humerus	Sinus to bone (humerus)	55	–	+	–	–	–	–	–	—	"	'	190	Vaccine from commencement B perfringens in blood No flare on subsequent operation
27 55a	Flesh wound buttock	Swab from depths of sinus	39	+	+	–	–	–	+	+	—	Staph aur			Staph aureus isolated from urine
28 60c	c.c.f thigh	Scraping sinus to bone	32	–	+	–	–	–	+	+	—	+			Sinus twice opened followed by "flare." Vaccine given 2 weeks operation, no flare"
29 63c	'	Sinus to bone (femur)	30	–	–	–	–	–	+	–	—	—		..	
30 1c	c c f femur wired.	Open wound, between bones	27	+	+	+	+	+	+	+	—	Strep Pro	'		Vaccine given from commencement No flare" on removal of wire
31 91c	g.s.w femur involving rectum	Sinus in femur to bone	49	–	+	–	+	+	+	+	—	—	Under treatment	200	Severe reaction with erysipelas on opening sinus Vaccine Sinus operated on 110th day no flare"
32 93b	g.s.w skull fracture.	Cerebro-spinal fluid lumb p	257	–	–	–	–	–	+	–	—	—	Death.	271	Readmitted for medical board Acute sudden onset Streptococcal meningitis
33 95b	Amp r arm g s w elbow	Sinus in stump	30	–	+	–	–	–	+	–	—	—	Recovery		
34 78	Closed cavity in femur	Swab from cavity	6 mths	–	–	–	–	+	–	+	—	—			
35 85	Closed cavity in tibia	Piece of cloth in cavity	164	–	–	–	–	+	–	–	—	+	"		No general or local reaction following removal of sequestrum or foreign body
36 73	Closed cavity r b on rib	r b from cavity	147	–	+	–	–	–	–	–	—	—			
37 84	Closed cavity in femur	Seq cavity (femur)	156	–	–	–	–	+	+	+	+	—			
38 80	Closed cavity c.c r radius	Pus aspirated from fract	170	–	–	–	–	–	–	+	+	—			
39 77b	Closed cavity cerebral abscess	Pus on opening abscess	93	+	–	+	–	–	+	+	—	—	Death.	115	Hernia cerebi 2 months after admission developed fits" Operation abscess
40 76	Closed cavity in rib	Scraping and r b on removal	92	+	–	–	+	–	+	+	—	—	Recovery		
41 74	Closed cavity in tibia.	Cloth in cavity in tibia	90	–	–	–	+	–	–	–	—	—			
42 89	Closed cavity in femur r b	r b from cavity in femur	89	–	–	–	–	–	–	–	—	—		...	
43 81b	Closed cavity in spine r b	Scraping from vertebra	34	–	+	–	–	–	–	–	—	—		..	No general or local reaction following operation
44 82b	g.s w skull subdural cys	Pus on opening	3 mths	–	+	–	–	–	+	+	—	—	"	...	
				12	25	11	22	15	31	32	..		'	..	
													Deaths 6	..	..

c c f Compound comminuted fractur a o B malignant œdema r B perfringens R. B Hibler (Rodella III) Seq sequestrum. r B foreign body

TABLE II

Inoculated Cases

Ref No	Injury	Bacteriology: Day of disease	M O	P	H	Coli G	Staph	Strep	Other	Clinical appearance of pus	Secondary hæmorrhage
24A	Flesh w through calf	4	+	+	+	+	+	+	—	Brown fœtid	
6D	Flesh w thigh N B I	5	+	+	—	+	+	+	—		
11D	Flesh w right arm and foot N B I	5	+	+	—	+	+	+	—		
20D	R B W foot and arm S B I	5	+	+	+	+	+	+	+	Brown black very fœtid	..
28D	S W thigh N B I	5	+	+	+	+	+	+	+	Brown fœtid	
30D	R.B W thigh N B I	13	+	+	+	+	+	+	+	Livid fæcal	
43D	R B W arm S B I	12	+	+	+	—	+	+	—	Brown slight smell	..
15D	R B W thigh N B I	3	—	+	—	+	+	+	—	Brown, fœtid	
1C	C C F femur M B I	27	+	+	+	+	+	+	—	Very fœtid	
25C	C C F arm	66	—	—	—	—	+	+	—	Creamy no smell	
10C	C F arm	5	+	+	+	+	+	+	—	Brownish fœtid	
31C	C C F arm M B I	5	+	+	+	+	+	+	—	Brown much smell	
43C	S W thigh ankle wrist	7	+	+	+	+	+	+	—	Black fæcal	
12C	C C F both legs	22	+	+	+	+	+	+	—	Brown fœtid	
51C	S W shoulder M B I	5	+	+	+	—	—	+	—	Very fœtid black	
52C	C C F humerus	25	+	+	+	+	+	+	+	—	
2D	S W back M B I	5	+	+	+	+	+	+	+	Very fœtid black	
7D	C C F both legs	15	+	+	—	+	+	+	—	Very fœtid	
9D	C C F leg ankle arm	7	+	+	+	+	+	+	+		
19D	S W shoulder M B I	10	+	+	+	+	+	+	—	Brown fæcal	
37D	C C F femur M B I	9	+	+	+	+	+	+	+	Brown fœtid	
10D	S W C C F thigh and knee	19	+	+	+	+	+	+	+	Brownish butyric	
41D	S W amputation shoulder	6	—	+	—	+	+	+	—		
20D	R B W pelvis S B I	5	+	+	+	+	—	—	—	Brownish fæcal	
24			21	23	18	21	22	23	8		

Uninoculated Cases

Ref No	Injury	Bacteriology: Day of disease	M O	P	H	Coli G	Staph	Strep	Other	Clinical appearance of pus	Secondary hæmorrhage
13A	Flesh w calf N B I	2	+	+	+	+	+	+	—	Discoloured stale	Day
32B	R.B W thigh N B I	8	+	+	+	+	+	+	—	Brown fœtid	17
46B	Flesh w shoulder and arm	7	+	+	—	+	—	+	—	Brown slight smell.	
29B	R B W foot N B.I	7	—	+	—	+	+	+	—	Discoloured no smell	
34B	S W thigh N B I	5	+	+	+	+	+	+	+	Brown fœtid	...
14B	R.B W arm N B I	6	+	+	+	+	+	+	+	Yellowish no smell	
21C	C C F humerus M B I	8	—	+	+	+	+	+	+	Brownish smell	
50C	C C F femur M B I	84	+	+	+	+	+	+	—	Brown no smell	
27C	S W thigh very severe S B I	5	—	+	+	+	+	+	+	Brown much smell	10
42C	C C F arm rad and uln	6	+	+	+	+	—	—	—	Brown fœtid	
23C	C C F arm flesh w leg	5	+	+	+	+	+	+	—	Black brown fœtid	
35C	C C F arm rad. and uln M B I	17	+	+	—	+	+	+	—	Brown much smell	10
49C	S W thigh and arm	7	+	+	+	—	—	—	+	Brown fœtid	
53C	C C F leg	40	+	+	+	+	+	+	—		
47C	C C F humerus M B I	4	+	+	+	+	+	+	+	Brown black fœtid	25 & 40 ..
35C	C C F tibia	10	+	+	—	+	+	+	—	Brown fœtid	..
22D	C F skull cervertebra.	8	—	—	+	+	+	+	+	Greenish no smell	..
67D	C C F tibia	31	—	+	+	—	+	+	—	Brown fœtid	3[illegible]
54D	C C F rad and uln multiple shell w	41	+	+	—	—	+	+	—	Greenish no smell	
17D	S W shoulder, M B I	7	+	+	+	+	+	+	—	Black much smell	
18D	C C F femur M B I	29	+	+	+	+	+	+	—	Black very fœtid	2[illegible]9
4D	C C F femur and knee M B I	60	—	+	—	—	+	+	—	Creamy no smell	62
3D	S W amputation shoulder	5	+	+	+	+	+	+	+	Brown fœtid	13 & 1[illegible]
23			17	22	17	19	20	21	8		8

NOTES — No 6A — Readmitted 52nd day Sinus No 20B — No 4 since Recurrent T 28th day in auxiliary hospital No 2D — Death 56th day No 9D — Death 205rd day Streptococci in blood No 19D — B Perfringens in blood

NOTES — No 7 B — Death gas gangrene 28th day No 43C — Death gas gangrene 9th day No 7 C — Recovery No 7 D — Death 14th day No 15D — Recovery No 4 D — Amputation through knee 72nd day No 3D — Recovery

N B I No bone injury S B I Slight bone injury M B I Much bone injury S W Shell wound F W Flesh wound R B W Rifle bullet wound C C F Compound comminuted fracture C F Compound fracture M O Malignant œdema

the fact that the observation was in conflict with several other observers Thus Fleming says he was unable to find vibrion septique' in any of his 32 cases although the drawings he gives especially of the clostridial forms are highly suggestive of Koch's malignant œdema while the slender end sporing organisms with oval spores are indistinguishable from Hibler's organism—in fact from a mixed infection resembling Fleming's drawing (Fig 1 p 640) I have isolated in cultures sufficiently pure to determine their biology B perfringens B malignant œdema (Koch), and B Hibler

Dudgeon † in discussing the bacterial flora of 21 cases records B aerogenes capsulatus (B perfringens) in 10 cases In the two cases he quotes which were presumably sinus cases one on the sixty fifth day and the other on the forty ninth day of the disease B tetani is associated with B coli in one case and P proteus in another, no organisms resembling B malignant œdema are mentioned

Robertson in a resume of an extended research on anaerobic bacteria in the discharge from septic wounds had no difficulty in isolating an organism corresponding in its main characters with the B malignant œdema of Koch and was able to differentiate this organism from B perfringens and B Hibler but lays stress on the extreme difficulty in obtaining pure cultivations of B perfringens and B Hibler This has been my own experience, even when after considerable plating an apparently pure strain is obtained a few weeks culture on egg medium' usually results in the recrudescence of B malignant œdema The organism isolated agreed with that described by Miss Robertson

It may be stated therefore that three types of sporing anaerobes at least are frequently found in the infected wounds having biological characters of considerable divergence (a) B malignant œdema primarily a protein digester, and in addition liberates ammonia in considerable amount (Dale[1]) (b) B perfringens an acid producer, butyric and other acids are formed from the attacked meat, gelatin is liquefied but not coagulated serum gradual digestion of meat occurs (c) B Hibler causes slow digestion of meat with acid reaction no liquefaction of coagulated serum

These biological activities are of the utmost clinical importance for although the consensus of opinion of recent observers is that B malignant œdema and B perfringens are extremely variable in their pathogenicity their biological activity is apparently more constant and may be as important as the pathogenicity of the associated aerobic bacteria The persistence of these anaerobes in sinus cases especially in the sequelæ for long periods has been demonstrated in my researches set out in Table I In illustrating the persistence of anaerobes in sinus cases it is great importance by the presence of sequestra In one case only was the anaerobic flora associated with symptoms of gas gangrene which supervened upon operation The case recovered showing that anaerobic bacteria are common in sinus cases that they may even be found in closed cavity cases and that the organisms are found a very long interval after the original

† THE LANCET June 1 p 1[illegible]

wound, when all clinical symptoms of fever and other constitutional disturbance have disappeared.

Bacteriology of Sinus and Closed Cavity Cases

Chronic sinuses, often determining general constitutional disturbance when operated upon, are very common, and the problem of dealing with them is urgent Owing to the splintering of bone and the amount of bruising suffered by the soft parts, the initial stage of healing in many wounds is frequently greatly delayed, the purely mechanical damage to the tissues promoting the sequestration of micro-organisms in fragments of bone and developing granulation tissue Not only are nooks and crannies present in the interior of severe wounds, but the granulation tissue thrown out by the injured surface is indolent, low in resistance, and while invading organisms become phagocyted by the wandering cells by no means all are destroyed In a recent publication Peyton Rous and F S Jones[11] call attention to the protective action of living cells upon bacteria Experiments with a specific hæmolytic serum and the appropriate red cells showed that the red cells when englobed by phagocytes were protected from the lytic action of the specific serum, although any cells remaining unphagocyted were quickly dissolved Using trypan blue as an indicator of the death of the cell, Rous and Jones were able to show that the cells which had taken up the red corpuscles were still living and exhibited considerable resistance to various destructive agents, the protection against the action of the homologous hæmolytic serum appeared to be a characteristic of the living cell Testing this hypothesis with typhoid bacilli it was found that a concentration of N/150 potassium cyanide killed typhoid bacilli in a suspension of guinea pigs' corpuscles without destroying the life of the corpuscles themselves, with the result that the bacilli contained in the cells were protected and grew when the emulsion was plated out, no growth occurring in the controls

There is little doubt that continued reinfection of the walls of a sinus takes place through phagocytic action, and the difficulty of eliminating bacteria implanted in the granulating walls, so well known clinically, is explained by Rous and Jones's valuable observations Moreover, the use of hypertonic salt solution, which invariably produces flabby granulation tissue when continued for extended periods would seem to aid the sequestration of phagocytosed organisms Hyperchlorites exert a solvent action on dead and partially dead tissue, and it is possible some of their activity is due to this action as well as their bactericidal properties As a general rule during my investigation of sinus and septic wounds material obtained within half an hour after dressing with either iodine peroxide or saline has given substantial bacterial growth but in very few instances have I obtained cultures within half an hour of hyperchlorite dressings

From the clinical point of view the sinus case causes anxiety Firstly it goes on for a very long time and although the patient may not be ill yet is entirely incapacitated from duty, secondly attempts to close the sinus surgically may cause a "flare" or only result in further chronic suppuration, even a healed wound constantly breaks down again without any adequate surgical cause

In September 1915 Colonel Bond[12] called attention to the recrudescence of sepsis or local reinfection, and cites several cases where severe local inflammation followed trivial surgical procedure such as passive movement to a joint in the vicinity of an old wound Colonel Bond[12] says Is the capacity of organisms to remain alive and virulent the result of the formation of fibrous tissue," &c ? and further 'Is the time interval of essential importance?'

Mr Jocelyn Swan and myself[13] noted a series of cases of 'closed cavities in which a careful bacteriological examination was made Cultures were obtained at operation from the cavities containing foreign bodies after complete healing of the entrance wound. Four of these closed cavity cases are included in Table I (Nos 34, 39 40 41) At the time that paper was published the investigation on sinus infection was proceeding The research is still in progress but sufficient details have been accumulated to warrant a preliminary communication I have, therefore collected into tabular form (Table I) certain of the more important facts relating to the bacteriology of sinus cases and closed cavity cases showing the day after the infliction of the injury upon which the bacteriological examination was made the clinical variety of the injury, the organisms demonstrated, and some of the essential clinical notes relating to the cases The organisms isolated are scheduled according to the grouping already given, and the letters and figures in the second column refer to the cases as classed under the four headings indicated above The earlier bacteriology of the wound is omitted from Table I, but the details of 11 cases are given in Table III

In many of these sinus cases bone injury had been a prominent feature of the original wound, and the cultivations in which anaerobes were obtained were made from the necrotic or exposed bone at the bottom of the sinus at operation Cultivations had been made from the suppurating sinus from time to time before the removal of the sequestrum was undertaken, and these uniformly failed to show anaerobes The organisms encountered in the soft parts of the sinus were mainly streptococci, staphylococci, and members of the proteus and coli groups In only one instance (No 17) did anaerobic infection follow operation, extensive incisions were made, including transverse muscle incision, and the case recovered B malignant œdema was present in the pus films in large numbers

Sinus Cases which were Followed by 'Flares" after Subsequent Operation

In 13 cases (Nos 1, 2 6, 7, 10 11, 12, 16, 17, 21, 25 28, and 31) temperature reaction, in certain instances very severe followed the operation Two typical cases may be quoted —

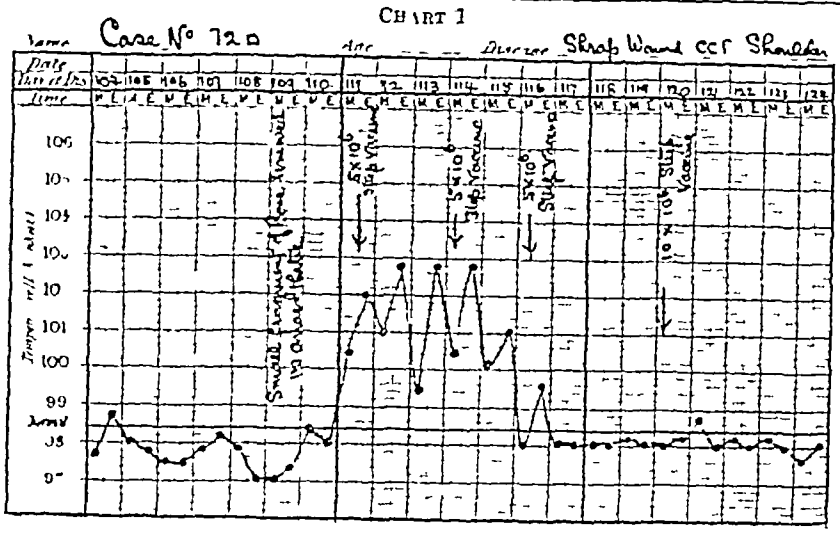
CASE 12 (72D)—Shrapnel wound of left shoulder with moderate bone injury On the 80th day after injury a sinus leading to the damaged shoulder being present a small piece of bone was removed with sinus forceps An acute attack of erysipelas came on within 48 hours associated with a severe attack of fever, the blush around the wound, arm and chest, remained for eight days On the 109th day another small bone fragment was removed and a similar attack took place (See Chart 1) The bacteriological examination gave an almost pure growth of streptococci from the sinus, malignant œdema and B perfringens from the extreme depths of the wound There were no symptoms of gas gangrene or tissue emphysema A dose of polyvalent streptococcal vaccine (5 x 10⁶) was administered immediately after an examination of the pus films and three days later 5 x 10⁷ of autogenous sensitised streptococcal vaccine was injected. The temperature (see chart) rapidly fell, two subsequent doses of vaccine were administered On the 122nd day some further pieces of bone were removed with no rise of temperature or other reaction In this case there was good drainage of the wound, and the bone fragments removed were out of all proportion to the "flare" which followed The case made a speedy recovery

CASE 6 (68D)—The second case was not a gunshot wound, but a fracture due to a motor accident The femur was put up on the second day the tibia plated on the 12th day, and the stitches removed on the 22nd day On the 29th day massage and movement of the knee were commenced, followed almost immediately by acute pain, and on the 32nd day an incision was necessary Streptococci were present in large numbers On the 43rd day another incision was made On the 47th day the plate from the tibia was removed, which was followed by a very severe reaction with pus in the knee joint The autogenous vaccine prepared was given inadvertently on three occasions at intervals of 24 hours then discontinued (Chart 2) The febrile period lasted till the 81st day Subsequent exacerbation of fever with local redness and increased pus development took place on four subsequent occasions A reinvestigation of the bacteriology was made on the 235th day, and streptococci found present as before, a new autogenous and sensitised vaccine was prepared and administered at appropriate intervals No further rise of temperature occurred, and three subsequent operations including curetting the sinuses related to the knee joint were performed without any temperature reaction or local tissue inflammation although at the last operation cultivations demonstrated the persistence of streptococci No further "flares" have taken place although two more operations were performed, and under the influence of the vaccine the indolent appearance of the granulation tissue has disappeared, and normal tissue is developing

CASE 23 (12C) is an example of severe sepsis with compound comminuted fracture which finally recovered without sinus formation.

The tibia of both legs were plated and vaccine treatment with autogenous sensitised streptococcal vaccine commenced somewhat late (22nd day) A large secondary abscess was incised on the 49th day, the temperature fell to normal on the 76th day, one other abscess having been opened From

CHART 1

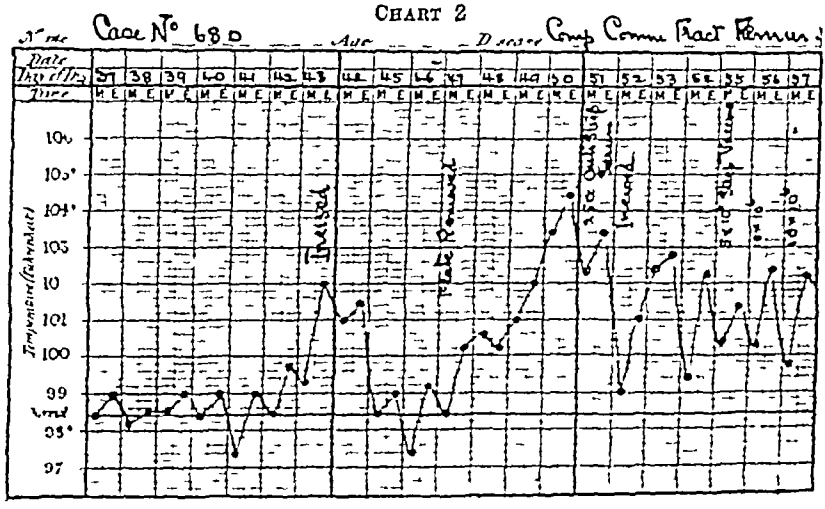


this time to his transfer to a convalescent home on the 146th day no further rise of temperature took place and no sinus was present (Chart 5)

CASE 10 (35c) is of especial interest as it was a control case to 52c (Table II)

The two men were readmitted on the same date (177th day of disease), the one with an entirely healed wound and no tenderness and complete, but irregular, union and no sequestrum The control case with a similar original wound and bacteriological picture had two unhealed sinuses leading to bone, several operations and attempts to close the sinuses had failed Bacteriological examination showed the presence of B perfringens B proteus and streptococci an autogenous vaccine was prepared and administered The case still under treatment has healed up twice but has broken down again no operation has been performed on the sinuses since vaccine therapy was commenced

CHART 2



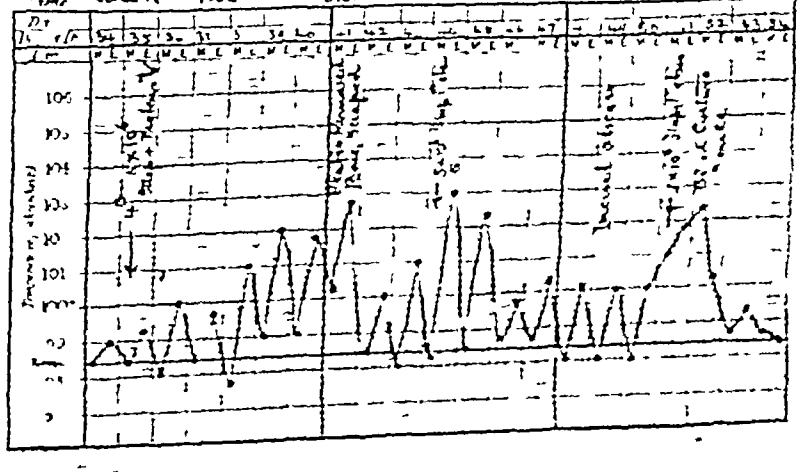
Administration of Appropriate Vaccine Previous to Operation

In 22 cases in Table I vaccine inoculation had been given at intervals for at least two weeks previous to subsequent operation in no instance was the operation attended by any flare (No 1 4 5 6 7 8 9 10 12 14 18 19 20 21 23 25 26 27 28 30 35 and 43) In 8 (Nos 1 6 7 10 12 21 25 and 23) of this series a flare had followed a previous subsequent operation but after the administration of the appropriate vaccine no disturbance followed the later operations performed The case of cerebral abscess had no vaccine treatment until after the operation Case 2D severe injury to the sacrum with an abscess cavity containing anaerobic bacteria in the spinal canal received vaccine treatment but succumbed to nerve degeneration caused by the original injury, for three weeks before death there was no fever Cases 54c and 83D had no vaccine treatment while 9D was treated with autogenous vaccine This case developed large bed sores infected with B perfringens

The cases in Table I, 44 in number comprise (1) 33 sinus cases, (2) 1 cerebral abscess case, and (3) 10 closed cavity cases None of the closed cavity cases suffered from constitutional disturbance following the exploration of the cavity and removal of the foreign body or sequestrum The sinus cases include 29 which were operated on after they had come under observation, 15 were not immunised before the operation, and 13 of these 'flared', 14 were immunised before operation and none flared" Eight of the 13 cases which "flared' required further operative treatment, and were accordingly treated with autogenous vaccines before the next operation was performed, none of these cases flared ' In no single instance therefore, was any subsequent operation followed by a flare when previous appropriate vaccine treatment preceded the operative measures All these sinus cases had suffered from severe tissue laceration when wounded no doubt predisposing the local persistence of the organisms concerned in the flare The figures given are an example of the great advantage of vaccine immunisation as a preliminary to operative interference with the chronic sinuse

There is also evidence that vaccine therapy is of value in the earlier stages of these wounds In Table II I have set out certain particulars relating to the vaccine treatment of 47 severe and septic wounds in their earlier stages Although the general discussion of my observations on vaccine therapy

CHART 3



is reserved for the second section of the report, Table II has been introduced as some of the facts, especially the bacteriological findings, are of interest in relation to the later bacteriology of the sinus cases Fourteen of the cases are ones that also appear in Table I, these cases are collected in Table III, and the first bacteriological examination made

TABLE III.

Persistence of Anaerobic Bacilli in Wounds Eleven Cases

Case	Day of examination	M O	P	R	Coli	Strep	Staph	Day of last examination	M O	P	R	Coli	Strep	Staph	Site of culture.
21c	o 8	–	+	+	+	+	+	136	–	–	–	+	+	–	Pus from sinus.
47c	o 4	+	+	+	+	+	+	269	+	+	+	+	+	+	Sequestrum at operation
35c	o 10	+	+	–	+	+	+	177	–	+	–	+	+	+	Scraping from sinus
24A	v 4	+	+	+	+	+	+	52	+	–	–	–	+	+	*Pus from sinus.*
31c	v 5	+	+	+	+	+	+	273	+	+	+	+	+	+	Sequestrum at operation.
2D	v 5	+	+	+	+	+	+	52	+	+	+	+	+	+	Pus in sacral canal
37D	v 9	+	+	+	+	+	+	80	–	+	–	+	+	+	Scraping at operation (bone)
10D	v 19	+	+	+	+	+	+	56	–	+	+	+	+	+	Pus from *sinus (deep).*
18D	o 29	+	+	+	+	+	+	285	–	–	–	+	+	+	Pus from sinus
9D	v 7	+	+	+	+	+	+	189	–	+	–	+	+	+	Pus from sinus (deep)
19D	v 10	+	+	+	+	+	+	55	–	+	–	–	–	–	
11	..	10	11	10	11	11	11	..	4	8	4	9	10	9	

v Vaccine case o No vaccine.

subsequent to wounding compared with the final examination of the sinus or sequestrum Three of the 14 cases are omitted from Table III, as the particulars of the bacteriology given in Tables I. and II refer to an examination on or about the same date.

There is no indication in the results that the use of the vaccine in the early stages of the wounds had reduced the anaerobic flora of the sequestrum or sinus In the cases in which B malignant œdema persisted one was an injury affecting the sacral canal (2D) Two were cases of sequestrum formation, no anaerobes were present in the *sinus pus* One case was a simple sinus without bone injury, and only received two injections of vaccine before he was transferred to another hospital and the inoculations suspended In seven of the eight cases in which B *perfringens* and B Hibler were recovered from the sinus at the final examination there was bone involvement, the cultures were obtained either from the sequestra or bone scrapings from the depths of the sinus Six were vaccine and two non vaccine cases

The aerobic organisms showed no striking diminution in incidence On the other hand it would be unwise to deduce, therefore, that vaccine therapy had effected no beneficial result, in fact, it is doubtful if the presence or absence of a given organism determined culturally in a sinus even where a specific antigen has been administered, is any test whatever of the benefit or otherwise of vaccine therapy Many factors are concerned in the growth or persistence of organisms in a sinus Rous and Jones's work points to one problem that deserves consideration, the physical imperme ability of fibrous tissue effectually preventing the permeation of the bacterial infected areas by the blood antibodies is a second, and the presence of a sequestrum is a third That vaccine therapy has little direct action in affecting the flora of a sinus and none whatever upon formed sequestra may be concluded from the facts collected in the foregoing tables.

Effects of Vaccine Therapy

Theoretically the production of antibodies by the injection of the appropriate vaccine depends upon the reactivity of the tissue into which the antigen is injected A man therefore, who is in normal vigorous health at the moment of wounding and until the development of toxin and bacterial products in the damaged tissue has lowered his initial high resistance to bacterial invasion, may be regarded as a peculiarly favourable case in which to raise the specific resistance against specific forms of bacterial invasion Theoretically the injection of appropriate antigen if undertaken early, should produce an increased resistance—

1. *To general constitutional disturbance immediately following subsequent surgical manipulation of the wounded and infected tissue a fortiori* when the local injury has become largely circumscribed by the natural protective action of the adjacent tissues

2 *To the spread of the bacterial invasion in the immediate region of the damaged tissue*, the damaged tissue consisting not only of the actual wounded tissues but the greater or less area which has suffered molecular disturbance without solution of continuity in direct proportion to the velocity of the projectile

The evidence adduced in Table I of the decreased liability to "flares" in cases in which vaccine therapy has been used systematically and the prevention of "flares" in cases which have already shown a "flare" following secondary operation gives good reason to conclude that the first of the above theoretical possibilities can be realised when vaccine therapy as an adjunct to surgical treatment is practically employed, and that the theoretical considerations suggesting the use of antigen inoculations coincide with clinical observation in properly controlled cases

The second of the two theoretical premises stated above receives considerable support from the cases in Table II These cases, which were selected in pairs generally from one convoy showed similar bacteriological pictures and suffered from directly comparable injury were for the most part treated under identical conditions as to surgical method dressing, antiseptics, &c. The clinical history was obtained from the notes kept in the wards, and it was not until a table was compiled tha secondary hæmorrhage was found absent in the inoculated cases and present in the controls

It will be seen in Table II that in the 24 cases treated with vaccines no case of secondary hæmorrhage took place while in the 23 control cases no less than 8 suffered from septic secondary hæmorrhage In two instances the hæmorrhage recurred 3 days and 15 days after the first attack. Of the 8 vaccine cases 6 were dressed with hydrogen peroxide, hypertonic saline, or saline and iodine, 2 were dressed with eusol The 8 control cases were dressed in a similar manner, 2 only with eusol Other treatment was exactly similar, and the injuries were strictly comparable

Bacterial Flora of Wounds

The cases of Table II. were for the most part wounded in the earlier part of 1915, at Neuve Chapelle some in the battle of Loos Recently the cases of secondary hæmorrhage have been less frequent and the bacterial flora of the wounds investigated somewhat less complicated There is a general agreement in my series of cases between the time of year (and therefore the earth temperature) and the severity of the wound infection This point will be dealt with in a later section A glance at Table II shows the very heavy infection found in the majority of wounds examined and demonstrates that the bacterial content of the wound alone is by no means the only factor in the determination of severe local or even generalised infection On the other hand, the cases of acute gas gangrene which have come under my own immediate observation in the acute stage have shown a preponderance of sporing bacilli with mid or sub terminal spores and many clostridial forms in the tissue smears (B malignant œdema) or large Gram positive non sporing bacilli (B perfringens)

In the sinus cases and the wounds without clinical symptoms of gas gangrene the Gram *positive* anaerobes were not in the majority and sporing forms are not very common. Gram negative bacilli were frequently seen, some of them probably degenerate forms of the B perfringens and malignant œdema others belong to the proteus and coli group Streptococci are not often found in chain form except in the cultures, in the tissue smears they mainly appear as diplococci

Fig 6 is reproduced from a photograph of a tissue preparation from a case of acute gas gangrene The bacilli are seen lying in the muscle bundles themselves, and a considerable area of semi digested tissue surrounds the organisms The appearance certainly suggests tissue digestion and further supports the view already enunciated that the anaerobic bacteria in sinus cases are of more importance as *tissue digesters* than *tissue invaders*

Conclusions of Section I

To recapitulate briefly the conclusions of the first section of my report I find in septic wounds and in sequestra forming as the result of such wounds —

(A) A preponderance of certain classes of anaerobic bacteria—namely, organisms referable to the groups (1)

B malignant œdema (Koch), (2) B perfringens (Veillon), and (3) B Hibler

(B) A small incidence of B tetani, at present only in cases of clinical tetanus

(C) That wounded tissues especially sequestra, contain anaerobic bacteria months after the original injury, even when the external wound has healed

(D) That infection of the wounded and partially healed tissues with anaerobic bacilli predisposes to sinus formation

(E) That persistent infection of wounded tissues is the chief if not the essential, factor of the "flares" occurring after operations upon sinuses

(F) That the use of appropriate vaccine therapy properly controlled is an important and urgent concomitant of surgical treatment in (*a*) the prevention of "flares" after secondary operations, (*b*) the prevention of sinus formation, and (*c*) the prevention of secondary hæmorrhage

(G) That the biological (digestive) activity of anaerobic bacilli is more important than the specific infectivity

As a result of my investigations into sinus cases generally I would suggest the following routine treatment for chronic sinuses resulting from gunshot and other projectile wounds The presence of bone involvement or sequestrum should be determined by radiography If a sequestrum be present anaerobic organisms are almost certainly present A bacteriological examination may or may not determine this point before operation, but the case should be treated as if anaerobes were present An autogenous vaccine and preferably sensitised vaccine should be made from the organisms in the sinus, streptococci and the coli or proteus group when present must be included If time is an object a stock polyvalent vaccine may be used, having regard to the bacteriological findings Should the preliminary inoculation give rise to constitutional disturbance a "flare" would presumably have followed an operation undertaken without previous immunisation Such cases should not be operated upon until efficient immunisation (three weeks at least) has been carried out If no constitutional symptoms follow an autogenous (not stock) vaccine operative treatment may be proceeded with, as only the minority of such cases "flare" The doses of vaccine given should commence with 5×10^6 of streptococci 10×10^6 of B proteus, and 5×10^6 of B coli The inoculation should be repeated at 3-5 day intervals, increasing the dosage with reference to the clinical symptoms Three days subsequent to the fourth dose the sinus should be surgically dealt with Possibly excision of the sinus walls would give better results than scraping with a sharp spoon, in fact the bacteriological and physiological considerations suggest this as the procedure least likely to contribute to further invasion

From the results recorded in this report it would appear that the anaerobic bacteria even if present in the sinus may be disregarded providing proper precautions are taken (1) to immunise the patient before operation, and (2) to provide an efficiently drained wound

The biological activities of the anaerobes do not apparently come into operation unless aerobic organisms especially the proteus group provide a suitable nidus or if tissue destruction (scraping) cause already damaged tissue to die off After operation hypochlorites (Dakin's[14] solution) may be used with advantage and the wound treated as an anaerobe infected one

All chronic sinuses which alternately heal and break down should be treated by vaccine therapy before subsequent surgical procedure is adopted

DIGITALIS IN AORTIC INCOMPETENCE

BY SEYMOUR TAYLOR, M D ABERD, F R C P LOND &c,
CONSULTING PHYSICIAN TO THE WEST LONDON HOSPITAL, ETC.

THIS is an old subject, but it is by no means threadbare I have written and spoken on it in previous years, and have made contributions to our literature bearing on this disease as other observers have done But without wishing to appear didactic, I think it well to add my further experience to strengthen the views which I hold

As one lives longer and sees more cases, and also registers the results of treatment, or the failures and successes of prognosis, one becomes more impressed with the value of clinical experience as against the theories of the laboratory or the seductive whisperings of a physiological instrument So far as prognosis is concerned, there are some fixed opinions on the subject of valvular affections of the heart And no opinion, so far as my experience goes, is so firmly established as is the seriousness of aortic regurgitation Even in youth it is a lesion of the gravest character But in a man or a woman upwards of 40 years of age even should the causal disease have been only recently acquired the outlook is always serious, though as I shall show, some sufferers may survive to good old age Perhaps I may put the whole question of prognosis in a single sentence by saying that in life assurance any applicant having aortic insufficiency should be "loaded" 100 per cent if he be young but if he be over 45 years of age his proposal should be rejected

But not only is the prognosis always grave not only must we admit that the sufferer has in the majority of instances a shortened span of life, but that all who have had opportunities of observing these cases and of recording their longevity must also be convinced that the immediate prognosis is one which requires cautious utterance The various eddies, cross currents, and commotions in the stream of life are complex and beyond our control Hence a violent emotion, an exciting episode, or a sudden muscular effort may bring disaster to the sufferer from aortic incompetence, notwithstanding that to all outward appearances he may hitherto have been in the enjoyment of a fair amount of health and with little or no distress The patients who do fail under these adverse circumstances die suddenly suffering little or no pain themselves, but on the other hand many survive beyond middle age and lead useful if not laborious lives

I have now for many years past been observing and recording the life histories of patients who have suffered from aortic regurgitation and who still survive or who have survived to a recent date I have so far as I could obtain information thereof made notes of their ages when death overtook them, and I have in many instances ascertained the form of death whether sudden or lingering, and also have I specially inquired whether digitalis had been administered during the last or fatal illness, or whether death occurred without warning and without any special cardiac treatment And here I may observe that careful inquiry will reveal the facts that many sufferers from aortic incompetence are unaware of the fact that they do not see medical advice for any symptoms referable to heart disease and further that many of them perform arduous work entailing prolonged muscular exertions with no distress or discomfort The experience of the French military doctors as recorded in THE LANCET of Jan 29 1915 proves all this The soldiers who had been on active service and were sent to hospital from the front were

aortic incompetence, and this being such a serious affection our whole attention must be given to it, any other valve lesion being of minor interest and importance

I have for many years tried to show that aortic incompetence by itself is not only a most serious lesion, but also that its gravity and its discomfort are enhanced if the mitral valve is holding and competent This may appear to be a paradoxical statement But I have abundant evidence, derived from observing numerous cases, to convince me that mitral regurgitation is really a boon to sufferers from aortic regurgitation Some argue that two lesions cannot be more advantageous than one I am not so sure of this We see compensatory hypertrophy, which is obviously an abnormality, in certain muscles when the spinal column is distorted. It cannot be said that a hypertrophied left ventricle is a healthy or normal condition yet it obtains in chronic kidney disease with changes in the arterial system I often wonder how a long distance runner would complete his course without the so-called physiological' action or overflow of his tricuspid valve, by which his labouring right ventricle is relieved. This phenomenon is one of the first things which we learn in our text-books

Transferring our attention to the left side of the heart we can then recognise how a bicuspid valve (mitral) may, by its leakage, allow a similar relief, a lessening of centrifugal tension, notwithstanding that it is pathological Even allowing that this is conjectural, I have records of many cases, in early middle age who have led and who still lead, lives of comparative comfort, they having the double lesion, whilst, on the contrary others having only an aortic incompetence, suffer dyspnœa faintings, and other discomforts, and are incapable of any beyond the slightest exertion If there is one fact which has impressed itself on my mind when studying cardiac affections it is the comfort which an imperfect mitral valve bestows on a patient who has an incompetent aortic valve also Let me admit, however, that I have no scientific proofs of these statements I can only record clinical experience Here are two cases in brief detail

CASE 1.—An insurance clerk now aged 27 had chorea at the age of 11 He was known to have a weak heart" His father brought him to me when he was 18, with a view to ascertain what occupation he was then best fitted for from a physical point of view I found that he had unmistakable signs not only of aortic refluent disease, but of mitral regurgitation in addition He has been in his present employment now for upwards of nine years, he has suffered from no dyspnœa, angina or œdema, and he recently told me that he could run upstairs without discomfort, and that he often had to race uphill to catch his morning train to London I can see no reason why this young man, knowing his infirmity and taking proper precautions (I have scolded him for disobeying my orders about running), should not live in comparative health and comfort to at least middle age and possibly longer, though his life must always be regarded as a precarious one

CASE 2.—The patient a man aged 39 was seen by me 17 years ago He had typical signs of aortic regurgitation due to an attack of acute rheumatism when he was 20 The mitral valve then was apparently intact I saw him again last year after he had had a second attack of rheumatic fever I then found that he had a systolic murmur, loudest at the apex, distinctly heard at the angle of the left scapula and attended by accentuation and reduplication of the second sound over the pulmonary artery The signs of his old aortic incompetence were also quite evident He came to see me more with the view to ascertain my opinion as to whether he could be employed as a builder's foreman, and singularly enough he volunteered the statement that since his second attack of rheumatism he had had less dyspnœa, and was more able to perform active duties than during the period between his first and his second attacks

By some physicians my conclusions may be classified as speculative only But as Darwin has shown no good or original observation can be made without some speculation The brilliant discoverers of the origin of malarial fever, of plague, and of other devastating diseases only made speculative and conjectural observations at first Others again, have effected cures by means of serum therapy by the administration of drugs and of glandular extracts, but the scientific proof of how the various diseases are thereby cured has yet to be divulged Similarly one may object to the statements of clinical events (I call them events rather than facts for the present) as not yet capable of scientific proof But I contend that if there be an overwhelming amount of good evidence in favour of one or against another certain line of treatment, then we must accept facts and wait for their elucidation by experimental proof till some future period

The efficacy of a drug in the majority of instances has been ascertained by clinical experience rather than by laboratory research. The effect noted by a certain drug on the heart and pulse of a dog is not conclusive that a similar effect will be produced on a human's circulation by the same drug Some animals consume what are to us poisonous plants with impunity, and I have little doubt that the converse applies Therefore, I contend that one's experience should guide us in giving advice in the treatment of disease Experience, after all, is a firm bed-rock on which to base statements dogmatic or didactic though they be The mason builds from below, he knows really nothing of the laws of gravity, yet he has the intuition that if he attempts to build in any other manner disaster awaits him When the keystone is in position he may then survey his work with satisfaction, and may with greater ease and understanding listen to the explanation of the laws of thrust, expansion, and other varying forms of what is really gravity If the opinions of some others differ from mine I must accept them but I can accept no surmise, I must have quoted facts derived from records of cases which have been carefully observed

To my younger confrères, therefore I would say "Keep notes of your cases of aortic insufficiency, record their longevity, their modes of death, whether sudden or lingering, and compare a series of cases treated by digitalis with another series of cases in which the drug has had no place in the defence" Obviously I am only referring to those cases of aortic regurgitation which, in the opinion of the medical attendant, require medication—cases which show signs of ventricular dilatation and cases in which attacks of dyspnœa come and go, and even those cases in which the medical attendant may, and often does, say with perfect faith, "Your heart requires a tonic from time to time, therefore keep this prescription in your pocket and occasionally take the remedy" I wish to caution such doctors Sudden death in these cases is by no means uncommon. I have received not a few letters from younger practitioners in which they have related cases of sudden death, although no sign of such an impending event was manifest But their consolation was "My teacher always advocated digitalis in these cases", or 'Dr So-and So, under whom I studied, was in the habit of prescribing the drug" And this places me in a difficulty, for I know that eminent men have been quoted But I will make one qualification—a qualification which I have made before—to my objection to the use of digitalis in aortic regurgitation If in addition to aortic insufficiency the patient has also mitral regurgitation, then digitalis is a useful remedy

Now the chief object of this communication is to put on record some addition to the number of cases having aortic regurgitant disease who have survived to old age and to whom digitalis has never been given since I have had them under observation, now some 10 to 15 years I prefer to leave out any further record of cases which after a course of treatment by digitalis have died suddenly as such a record might occasion some distress I have had it said to me that better authorities than I have advocated the use of this drug in case of threatened cardiac failure, even when the cause thereof was simple aortic regurgitation, that even in those cases which after a regulated course of the remedy, do die suddenly, it was only a natural event one to be almost anticipated and not due to digitalis All I can do in reply, is to mention that I have received letters from doctors, and have records of cases, confirming my experience, and what to my mind is stronger evidence is obtained from the experience of cases which survive, or have survived, to old age, without their having had a single dose of digitalis It will therefore be well if I record three more such examples.

CASE 3.—A wealthy gentleman, with every worldly comfort, was first seen by me when he was 69 years He had every sign of aortic regurgitation—diastolic basic murmur, shaking carotids capillary pulsation, Corrigan's pulse, &c, but his mitral valve was intact. During the whole of the period, nearly 20 years, in which I had him under observation with his doctor, he never had a single dose of digitalis, and although he had, from time to time, attacks of dyspnœa these were successfully encountered by small doses of trinitrin (gr 1/200) and a very diminished dietary, usually about a third of his daily food with one day's fasting in

each week He survived to the age of 88½ and died *gradually as though worn out*

CASE 4 —The patient a twin (female), aged 79, was first seen by me 15 years ago She had, and has now, all the cardinal signs of aortic incompetence but with no evidence of mitral regurgitation The physical signs are also accompanied by characteristic symptoms, such as periodic attacks of breathlessness, palpitation, with insomnia or nightmare I advised treatment similar to that which is outlined in the preceding case She still survives, and is in her eightieth year

CASE 5 —The patient a female, was first seen by me in 1901 suffering from dyspnœa, accompanied by signs of aortic regurgitation, with crackles at the base of each lung and a tendency to anasarca I had a suspicion, from the existence of certain well known physical signs, that her mitral valve was not holding completely, this suspicion being strengthened by the signs of back pressure Still, acting on my advice and wishes digitalis, although suggested, was not given I hear that she died last year in her eighty seventh year

Here are three remarkable cases, all octogenarians, who suffered from grave valvular affection, for which probably many practitioners would have from time to time prescribed digitalis, since it will be noted that these cases were not without symptoms of distress, that they were not examples of cases which we frequently see in whom, though the aortic lesion is well marked by physical signs, there were no urgent symptoms All three consulted me on account of serious indications of distress, which returned from time to time and which called for relief

These cases, if they show nothing else, illustrate how many people, notwithstanding serious cardiac ailments, may live to good old age by careful treatment and management

Seymour street W

ABDOMINAL PREGNANCY, PROBABLY PRIMARY[1]

By FREDERICK J McCANN, M D EDIN , F R C S ENG ,

SURGEON TO THE SAMARITAN FREE HOSPITAL FOR WOMEN, MARYLEBONE ROAD LONDON N W LECTURER ON GYNECOLOGY MEDICAL GRADUATES' COLLEGE AND POLYCLINIC ETC

THE recent researches on the embedding of the human ovum and the definite proof of the existence of ovarian pregnancy established by quite a number of recorded examples have been the means of altering the attitude which has hitherto been adopted towards the possibility of primary abdominal pregnancy It is now affirmed that the ovum will embed itself in any patch of connective tissue capable of supplying its nutritional demands That a pregnancy is primarily abdominal is difficult to prove but it is also difficult in certain examples to disprove, for in the light of modern knowledge we can no longer cling to the old statement that "all cases are primarily tubal" If further a detached ovum and therefore a damaged ovum can become implanted and grow on the peritoneal surface, why not a fresh ovum? Now the situation in which this implantation would be most likely to occur is the upper part of the posterior surface of the uterus An entirely erroneous impression of the position of the appendages is apt to be an ovary, the seat of a cystoma? It is therefore not difficult to imagine that it may become implanted in the posterior surface of the uterus

As a contribution towards the study of this subject let me record the following example Dr M K Huston of Harrow has very kindly furnished me with some facts concerning the patient's previous history, which I give in his own words —

She was aged 35 years and had had three confinements all, as I understand, normal and of short duration the last two years ago Her menstruation ceased at the end of July 1915 In August and September, 1915 she had an attack of meningitis, probably cerebro spinal, although the meningococcus was not found I was first called to see her on Friday, April 28th, 1916, and was informed that the 'waters' had come away the previous evening while the patient was at tea There had been very slight labour pains but these had passed away, and from the description it was doubtful whether they were labour pains or not During the night the patient had been sick several times The bowels had acted well with enema She complained of pain in the epigastrium, but no labour pains On examination she was found to be in fairly good general condition colour good pulse 96 abdomen apparently that of a woman at full term The child could not be definitely felt by abdominal examination, although there was a hard mass in the left side which suggested the head No movements of a fœtus could be felt although she stated that she felt movements distinctly up till the preceding day On vaginal examination the os was only enough dilated to admit the tip of one finger No presenting part could be felt and there was no external hæmorrhage

On Saturday and Sunday the patient's condition remained much the same, her chief complaint being epigastric pain vomiting, and sleeplessness On the Sunday morning about two teaspoonfuls of blood had been passed per vaginam No decidua had been expelled On Monday May 1st I was summoned to see her by Dr Huston as her condition had become worse She was a small, pallid spare woman and was sitting up on a chair with her feet resting on the edge of her bed She complained of pain in the epigastrium and informed me that she had been unable to retain any food A monthly nurse was in attendance and all preparations had been made for her expected confinement She was moved on to her bed with some difficulty because any attempt at movement seemed to cause considerable abdominal pains and distress The abdomen was much distended and there was considerable venous engorgement visible in the abdominal walls The abdomen was extremely tender on palpation especially on the left side over the position of the fœtal head and at other points where the foetus was palpable It was however, difficult to make a detailed examination of the abdomen because of the extreme tenderness as well as the intestinal distension The latter was so marked that what I took to be the transverse colon was visible and palpable lying across the upper part of the abdomen The outline of the uterus could not be defined as the patient at once resented any attempted pressure The breasts were somewhat atrophied and in appearance were not suggestive of pregnancy, and no fluid could be expressed from either nipple On vaginal examination well marked venous distension and blue discolouration were noted The cervix was much softened and drawn upwards and the os uteri about the size of a five shilling piece readily admitted the finger No presenting part could be felt on vaginal examination Bimanual examination was unsatisfactory for the reason already given The patient had an inguinal hernia on the right side and was wearing a truss When the truss was removed and the hernia examined there was considerable local tenderness and the hernia could not be completely

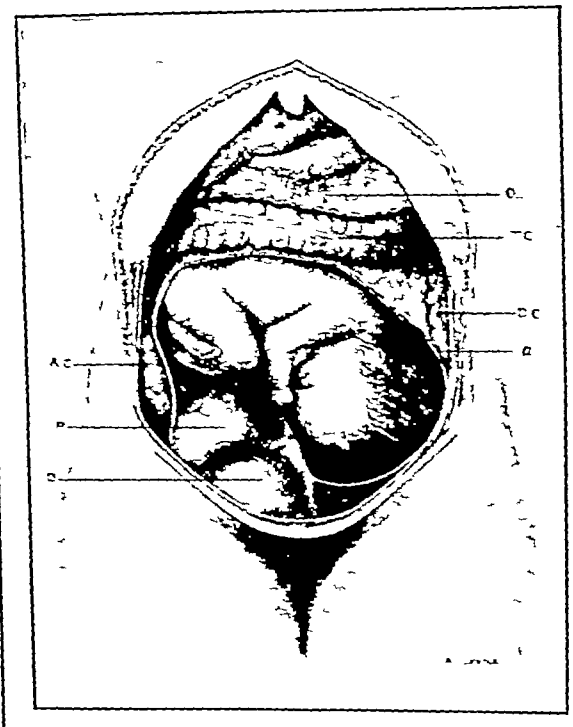
made a further abdominal examination but was still unable to define the outline of the uterus owing to the tenderness and intestinal distension. The tenderness was still most marked when pressure was made on any part of the fœtus. I again advised a policy of delay, and although it occurred to my mind that a rupture of the uterus was a possibility the history and the absence of signs of internal hæmorrhage made me decide against it.

Four days later I was summoned by Dr. Lambert, who informed me that the woman had not improved, and that he wished me to see her again. When I saw her she looked pinched and anxious, her pulse was 130, and she informed me that she could not sleep. I again examined the abdomen and succeeded for the first time in palpating the uterus, as both the abdominal tenderness and the intestinal distension had markedly diminished. It was possible to palpate the bones of the fœtal head, which imparted a curious crackling sensation to the examining fingers. Bimanually the uterus was pushed somewhat to the right side and corresponded to the size of a five months' pregnancy and as the fœtus was obviously extra uterine I decided to open the abdomen without further delay. For two days an offensive purulent discharge had issued from the vagina and the general condition of the patient suggested the presence of a severe toxæmia.

Operation May 7th 1916.—A free median incision was made and as soon as the peritoneum at the upper part of the incision was opened a small quantity of black blood clot presented. On enlarging the incision the umbilical cord of a dark slate colour bulged into the wound. The hand was introduced and a rapid exploration made. The fœtus was grasped by the legs and withdrawn without difficulty. It was a female, apparently of full development and the skin of the chest was beginning to peel. The uterus was at once brought up into the wound and was found to be enlarged to about the size of a five months' pregnancy with a well-developed placenta, to which the umbilical cord was attached firmly inserted in its posterior surface slightly to the right side. As the broad ligaments on either side were free the uterus and placenta were brought into view without difficulty. A strong odour of ammonia was perceptible during the operation suggestive of the presence of urine in the peritoneal cavity although the amount of intraperitoneal fluid was inconsiderable. The intestines were carefully packed off with sponges and a rapid supravaginal hysterectomy performed, leaving the appendages *in situ*.[1] The placental attachment seemed to fade away gradually on the lower part of the uterus, leaving the floor of Douglas's pouch covered only by the remains of the amniotic sac. Further remnants of the amniotic sac, brownish black in colour were found on the posterior abdominal wall, the utero-vesical pouch, the descending and pelvic colons, the transverse colon and omentum, the ascending colon and the peritoneum lining the abdominal wall. The peritoneum was thickened and dark in colour. The abdominal incision had opened into the amniotic sac, but the latter had evidently ruptured prior to the operation. The membranes attached to the placenta maintained their normal colour and had fallen over its upper surface like a cover. The amniotic fluid had evidently become absorbed, there being only some dark sanious fluid in Douglas's pouch. Thus although the amniotic sac had ruptured prior to the operation it was not difficult to reconstruct the arrangement of parts. (See illustration.) Moreover it was interesting to note that although the fœtus was dead and its skin beginning to peel, there were no adhesions of intestine or omentum to prevent its rapid and easy extraction. The small intestine seemed to be packed away in the upper part of the abdominal cavity. Some old blood clot was also cleared out of the utero-vesical pouch,[2] and as much of the amniotic sac as was readily detachable was removed. Two large drainage-tubes were introduced into Douglas's pouch and brought out at the lower end of the wound, while a veil of gauze was inserted above the tubes to assist in isolating the area to be drained. The abdominal wall was then closed and the dressings were applied. The patient bore the operation well and her pulse became slower and better after the fœtus and uterus had been removed. It was 95 at the end of the operation whereas the average rate had lately varied between 120 and 130. Her good condition was largely due to the fact that the total blood lost during the operation probably did not amount to more than a tablespoonful. The anæsthetic was ably administered by Dr. Lambert, whilst Dr. C. M. Pennefather rendered me valuable assistance at the operation.

After-history.—At my visit on the day following the operation the woman looked better and expressed herself as feeling better. The pulse-rate was 98. She had had no sickness or abdominal distension. Her tongue was dry and she complained of thirst. Still her general condition was as good as could be expected after such a severe operation. On the next day her general condition was much the same. I did not see her again, but was informed on the fifth day after the operation that her condition was very bad, and she gradually sank and died. For 12 hours previous to her death she was almost maniacal, shouting and exhibiting extreme restlessness. She had had no sickness since the operation. There had been no abdominal discomfort and the bowels acted well. A post-mortem examination was not permitted.

Description of the specimen.—The parts removed consisted of the fœtus and placenta together with the uterus removed by supravaginal hysterectomy. The fœtus was a female weighing 7 lb. and had reached full development within the abdominal cavity of the mother. It measured 14 inches from the vertex to the coccyx. The trunk and limbs were



Drawing illustrating the relations of the fœtus and placenta. A C, Ascending colon. T C, transverse colon. O, omentum. D C, descending colon. C, amniotic sac. P, placenta. U, uterus.

perfectly developed, but the head was enlarged suggesting early hydrocephalus. The skin of the trunk was beginning to peel and was readily separable on handling whilst it was also undergoing colour changes, bluish black and greenish yellow, indicating the presence of decomposition. The umbilical cord, 15 inches in length, was normally developed and was attached to a large well formed placenta. The attachment of the umbilical cord was eccentric, being situated towards the left side. The main placental mass was perched like a cap on the upper and back part of the uterus, whilst it spread laterally outwards and still more downwards so as to hide completely the uterine surface. The main placental mass measured transversely 5 inches, antero-posteriorly 3½ inches, whilst the vertical measurement was 6½ inches. The two layers chorion and amnion, could be demonstrated in the membranes attached to the placenta. Owing to the peculiar arrangement of the membranes there was a part of the placenta at its lower extremity to which the amniotic sac was not attached. This part gradually faded away on the lower segment of the uterus posteriorly. The appearance of the placenta was otherwise normal, and it was firmly inserted on to the posterior surface of the body and fundus of the uterus. The uterus was enlarged and was as stated about the size of a five months pregnancy but since immersion in formalin it had contracted considerably. Its walls were about 1 inch in thickness and its cavity, widely patulous with smooth lining, contained a myomatous polypus about the size of a walnut, springing from the posterior-lateral wall on the right side. Did the polypus interfere with the occurrence of intra uterine pregnancy? Thrombotic changes had taken place in the blood vessels, especially on the right side, which tended to diminish the hæmorrhage at the operation. The uterine artery on the right side was not identified.

[1] The right tube which was not identified was probably removed with the placenta.

[2] The old coagulum probably had its origin in a slight detachment of the placenta at its anterior border.

A historical study of the subject of abdominal pregnancy reveals the interesting fact that the older writers divide what they termed "ventral pregnancies" into two classes, the primary and the secondary By primary is meant that class in which the fœtus is developed at once in the peritoneal cavity, while in the second class are included all those cases in which the sac originally located in the tube or ovary has ruptured and the escaped fœtus goes on developing in the abdomen It should further be added that they believed in the existence of ovarian pregnancy I have no doubt their views will be substantiated by further research and experience, as has already been accomplished by the study of ovarian pregnancy and it will be established that although primary abdominal pregnancy is rare yet that it does occur in the human female

I do not say the example here recorded is or is not a primary abdominal pregnancy, for I can neither prove it nor disprove it, but I place it on record as a contribution towards the elucidation of this subject Let me, however, again refer to one or two points in the clinical history With the exception of the illness at the commencement of her pregnancy the patient had no acute pain, sudden illness, or fainting during the whole course of her pregnancy, and her husband informed me that she was remarkably well, and in this regard the history corresponds closely with that of the case recorded by the late Mr J W Taylor in the Transactions of the Obstetrical Society of London for 1897 He concluded that a "gradual erosion or giving way of the upper part of the tube had permitted the escape of the ovum into the abdominal cavity" In other words, his theory was made to fall into line with the views as to causation which were upheld at that time But with our present knowledge it is equally feasible to regard his case as one of primary abdominal pregnancy, a view which is strengthened by the clinical history The absence of abdominal illness at any time during the course of such a pregnancy is, in my opinion, strong presumptive evidence in favour of a primary abdominal implantation of the ovum

Now Dr Huston assures me that during the illness in August and September, 1915 when he was in attendance, and which has already been mentioned in the previous history of the case here recorded, there was no suggestion of any abdominal trouble Moreover, from a study of clinical histories it would appear that the abdominal fœtus has had a severe struggle to maintain its independent existence It is however remarkable that a woman can enjoy good health during the gestational period when the fœtus is in her abdominal cavity covered only by its amniotic sac Some recorded examples of abdominal pregnancy speak of the fœtus being free amongst the intestines This I believe to be a faulty observation for I should imagine that no fœtus would reach its full development unless enclosed in a sac and as the latter is as a rule opened when the abdominal cavity is opened it is easy to conclude that the fœtus is lying free Further when the sac ruptures or the liquor amnii becomes absorbed why do not the omentum and intestines adhere to the decaying fœtus? When the gestation is much prolonged this adhesion has been observed, but it would appear that for a long time no adhesions are formed

Again, what is the explanation of the rush of waters when false labour set in? The amount was sufficient to soak the bedclothes when the woman returned to bed Did it come through the Fallopian tube or tubes? In Taylor's case what he took to be the fimbriated end of the Fallopian tube was incorporated with the placenta but the remainder of the tube could not be traced I have not been able to trace any connexion between the right Fallopian tube and the placenta but the tube on the left side was free and doubtless patent Owing to the rapid growth of the placenta it is easy to imagine that a delicate structure like the Fallopian tube could be so to speak overgrown and incorporated with the placental mass and this I think is worthy of consideration as an alternative to the view that the destruction has been due to tubal rupture

The ovary on the right side could also be identified but it is quite possible too that this organ could be destroyed by the placental growth The ovary was smaller than that on the left side and was adhered to the broad ligament Whether this had resulted from any interference with the ovarian circulation it is impossible to say The left ovary was free and of normal size and was covered on its inner surface by the amniotic sac The external surface of the left ovary and the fimbriated end of the left tube were outside the amniotic sac at least no trace of the sac was observed on them

Surgical Treatment

I have already recorded an example of abdominal pregnancy in which a living fœtus at 4½ months was successfully removed The placenta was implanted in the posterior surface of the uterus the floor of Douglas's pouch and on the pelvic colon Previous to the removal of the placenta the main sources of vascular supply were controlled, including a large artery coursing down the posterior surface of the uterus and then the placenta was rapidly separated and the placental site at once plugged with gauze, the raw surface on the intestine was treated by folding in the wall of the gut and overstitching with catgut A gauze plug was left in the pelvis and was subsequently withdrawn during convalescence

Thus in dealing with the placenta two important principles should be followed (1) to control the main vascular supply by preliminary ligature, and (2) to separate the placenta rapidly

In the case here recorded the position of the placenta was ideal as regards surgical treatment, for by means of a supravaginal hysterectomy the vascular supply was controlled and the placenta itself removed It was the toxic condition of the patient that militated against her ultimate recovery The advice to wait until the child is dead and the placenta thrombosed is hardly in harmony with the trend of modern surgery, moreover, the presence of infection is a serious factor which may mar the success of a future operation I think, therefore, that if the principle of preliminary ligature of the vascular supply be properly carried out there should be little difficulty in dealing with the living placenta

When an abdominal pregnancy is diagnosed with a living child, should we wait until the child is viable? It is true that living children have been extracted and have survived but there is no evidence concerning their future growth and development, and as many of the children in recorded cases have possessed deformities I believe the best practice is to operate at once as soon as the diagnosis is made

In conclusion, it is a source of great satisfaction to find that it is from investigations made in this country that many of the interesting problems in the life history of ectopic gestation have been unravelled, and that their elucidation forms a brilliant chapter in the history of British gynæcology The name of Lawson Tait will for ever stand forth as a pioneer in the surgical treatment

Bibliography—Parry Extra uterine Pregnancy 1878 Taylor J W Extra uterine Pregnancy 1899 McCann Proceedings of the Royal Society of Medicine May 1913 p 229 and April 1916 p 1[illegible]

Wimpole-street W

* Proceedings of the Royal Society of Medicine April 1916 p 1[illegible]

A MEDICAL LIBEL ACTION.—Mr I F Forward Mr F J W Sass and Dr W D Hixson were plaintiffs in a recent action in the King's Bench Division in which they claimed damages for libel against the Women's Press Dr F Moxon Mrs F Pankhurst Mrs M Tuke Mrs [illegible] Fox and Mrs B Sanders who were sued personally and on behalf of the Women's Social and Political Union the Scottish Newspaper Publishing Company Limited and Messrs W H Smith and Son The libels complained of were published in the *Suffragette* and made what were in effect charges of cruelty in respect of forcible feeding administered to women prisoners on hunger strike in Holloway Prison of which the plaintiffs at the material times were medical officers Dr Moxon the author of part of the matter complained of at the [illegible] later wrote a letter from France where he [illegible] drawing all charges against the plaintiffs The defendants the Women's Press Mrs Pankhurst Mrs Tuke Mrs Fox and Mrs Sanders were served on [illegible] to obey an order of the court The [illegible] having appealed a venire was returned [illegible] Messrs W H Smith upon [illegible] them and damages were [illegible] defendants [illegible] plaintiffs The plaintiffs [illegible] which simply [illegible] which was indeed a [illegible] [illegible] damages [illegible]

INDICATIONS AND CONTRA-INDICATIONS IN THE PNEUMOTHORAX TREATMENT OF PULMONARY TUBERCLE

BY CLIVE RIVIERE M D LOND, F R C P LOND,
PHYSICIAN TO THE CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST VICTORIA PARK E. AND TO THE EAST LONDON HOSPITAL FOR CHILDREN, SHADWELL, E

IN the year 1821 a distinguished British physiologist, James Carson of Liverpool was urging on a seemingly apathetic profession the application of the newly recognised elasticity of the lung to practical therapeutic uses He pointed out the serious obstacle which was presented by the physical state of the lung its condition of extension, its elasticity, and its constant movement, to the healing of injury within it and recommended its collapse to counteract these influences Thereby he declared, ' the diseased part would be placed in a quiescent state, receiving little or no disturbance from the movements of respiration, which would be performed solely by the other lung, and the divided surfaces would be brought into close contact by the same resilient power which before had kept them asunder A wound or abscess in the lung would be placed in circumstances at least as favourable to the healing process as the same affections on any other part of the body " He proved by experiment on rabbits that animals could live quite well with one lung collapsed, and recommended the treatment for " consumption,' which, he pointed out, was often found in one lung only in the earlier stages " In those cases in which the disease is placed in one of the lungs only the remedy would appear to be simple, safe and complete '

Nearly a century has gone by and the brilliant foresight of Carson has at length received full recognition, not that so simple a theory as Carson put forward can be held fully to explain the value of pulmonary collapse in the treatment of phthisis, though the local effects he foreshadowed are by no means of negligible importance The tuberculosis literature of the world has for the past five years concerned itself above all else with the brilliant results of the pneumothorax treatment of phthisis But it is the continent and America that have supplied almost exclusively this literature In the British Isles it must be admitted, the treatment has hitherto provoked but little general interest and the prophet Carson has received among his own countrymen just that amount of honour which the world s history might have led us to anticipate A small band of pioneers among whom the names of Colebrook, Lillingston Vere Pearson, and Rhodes deserve special mention, have indeed long since planted the seed among us but the harvest has been small and the tuberculous Briton has been deprived, hitherto, of the blessings which his brilliant countryman promised a century ago and which the remainder of the phthisical world now enjoys

Since the success of pneumothorax treatment is bound up, above all else, in the selection of suitable cases I have thought it worth while to put together here some of the general indications and contra indications for this treatment, and therewith to present a description of a particular class of case where pneumothorax therapy seems peculiarly indicated and leads especially to brilliant results We may conveniently start with a consideration of these cases

Clinically Unilateral Tuberculosis

It is one may suppose common knowledge that the classical case for pneumothorax treatment is one of considerable one sided disease, with the other lung clear, or nearly clear to physical examination Such cases supplied the earliest material for treatment and they still form the backbone of this treatment when it is conducted on what I would regard as suitably conservative lines But where it may be asked are such cases to be found ' Experience teaches that in ordinary phthisis of adults disease has usually spread but a little way in one lung before it appears at the opposite apex and there seems but little chance that the better lung can remain clear while the disease on the affected side is spreading itself over the whole lung from apex to base Clearly these cases of advanced one-sided disease so suitable for pneumothorax treatment must be in many cases at least something other than ordinary apical phthisis, and their claim for consideration as a distinct group by themselves cannot afford to be disregarded

For the sake of illustrating certain points characteristic of this group I will refer shortly to some of my hospital pneumothorax material, since this has been in the main composed of cases of advanced one-sided disease Among 20 such cases, all adults, where the type of disease could be decided with some probability, 17 appeared to stand in a group by themselves and to present certain points of difference from ordinary apical phthisis All of these cases showed disease covering the whole of one side, and in all of them the good lung was clear or practically clear of signs In 6 no signs of cavitation were present to physical examination, but moist rales extended from apex to base, in 2 on the right side and in 4 on the left side In 11 definite cavity signs were present to clinical examination, and in most of these cavitation was considerable, but in all the cavitation showed one striking peculiarity In no case was it in proximity to the apex of the lung, in all the cavities were found comparatively low down in the lung Among 4 with right-sided disease, in 3 cavitation was mainly in the axillary region and in the fourth at the base In the remaining 7 disease was on the left side and in 6 of these cavitation was just outside the heart, about the middle of the lung in the axilla, or just above the heart In one it was basal In many of these cases no opportunity occurred for X ray examination before the lung was collapsed, so that the position of cavitation had to be decided by means of physical signs alone. Where X rays were used deep cavitation just outside the lung root was sometimes revealed. In one case a deep cavity just above the heart, near the neck of the left fifth rib gave cavity signs at the surface over the same rib as far away as the axilla In practically all the cases marked evidence of fibrosis was present and displacement of the heart and mediastinum was demonstrable, especially as would be expected in the cases where cavitation had occurred

The good lung was clear of stethoscopic signs in all these cases save for the presence of a few doubtful signs, which proved on further observation to have been conducted from the diseased side The use of the X rays, however, soon dispelled all inclination to describe the better lung as "healthy ' or even as "good." In all cases there was present a very definite peribronchial tuberculosis spreading out from the hilus, and often reaching two-thirds or even three-quarters of the way towards the surface This disease of the better lung appeared to be in most cases an arrested or quiet process Often it showed itself as a nodulated thickening of the lung reticulum, the nodules being in some cases fine but in others coarser Where the process was active larger shadows of lung infiltration were visible and the reticulated appearance failed After some months successful pneumothorax treatment these larger shadows tended to become smaller and denser and gradually to fall into a pattern which followed the lines of the ordinary network of the lung Unlike cases of apical phthisis where the skiagram shows disease mainly occupying the lung between the root and the apex in these cases the disease is seen to spread out in all directions from the root and often to occupy mainly the middle third of the lung or to branch in two or three directions of which the middle and lower are usually the most strikingly evident

It appears to be the rule, then, that in these cases, in spite of negative stethoscopic evidence there is present in the better lung a considerable amount of healed or quiescent disease The appearance of this in a skiagram need in no way deter from pneumothorax treatment as long as the appearance suggests a quiet type of disease and physical signs are absent, for the results of treatment are commonly as good in these cases as if the lung was really healthy With regard to the absence of physical signs, it is truly remarkable how near the surface of the lung this central disease even of active type may reach without either moist sounds or alteration of breath sounds giving notice of its presence As far as the stethoscope gives warning we might be dealing with a healthy organ fully clear of disease And in this respect these cases remind us at once of certain other tuberculous conditions where in spite of central disease stethoscopic signs are absent over both lungs instead of as in the cases just described, over one side of the chest

Hilus tuberculosis of children.—This is a condition where tuberculosis of chest glands is associated with a tuberculosis

A historical study of the subject of abdominal pregnancy reveals the interesting fact that the older writers divide what they termed ventral pregnancies' into two classes, the primary and the secondary By primary is meant that class in which the fœtus is developed at once in the peritoneal cavity while in the second class are included all those cases in which the sac originally located in the tube or ovary has ruptured and the escaped fœtus goes on developing in the abdomen It should further be added that they believed in the existence of ovarian pregnancy I have no doubt their views will be substantiated by further research and experience, as has already been accomplished by the study of ovarian pregnancy and it will be established that although primary abdominal pregnancy is rare yet that it does occur in the human female

I do not say the example here recorded is or is not a primary abdominal pregnancy, for I can neither prove it nor disprove it, but I place it on record as a contribution towards the elucidation of this subject Let me, however again refer to one or two points in the clinical history With the exception of the illness at the commencement of her pregnancy the patient had no acute pain, sudden illness or fainting during the whole course of her pregnancy, and her husband informed me that she was remarkably well, and in this regard the history corresponds closely with that of the case recorded by the late Mr J W Taylor in the Transactions of the Obstetrical Society of London for 1897 He concluded that a "gradual erosion or giving way of the upper part of the tube had permitted the escape of the ovum into the abdominal cavity In other words, his theory was made to fall into line with the views as to causation which were upheld at that time But with our present knowledge it is equally feasible to regard his case as one of primary abdominal pregnancy, a view which is strengthened by the clinical history The absence of abdominal illness at any time during the course of such a pregnancy is, in my opinion, strong presumptive evidence in favour of a primary abdominal implantation of the ovum

Now Dr Huston assures me that during the illness in August and September 1915 when he was in attendance, and which has already been mentioned in the previous history of the case here recorded there was no suggestion of any abdominal trouble Moreover, from a study of clinical histories it would appear that the abdominal fœtus has had a severe struggle to maintain its independent existence. It is, however remarkable that a woman can enjoy good health during the gestational period when the fœtus is in her abdominal cavity covered only by its amniotic sac Some recorded examples of abdominal pregnancy speak of the fœtus being free amongst the intestines This I believe to be a faulty observation for I should imagine that no fœtus would reach its full development unless enclosed in a sac and as the latter is as a rule opened when the abdominal cavity is opened it is easy to conclude that the fœtus is lying free Further, when the sac ruptures or the liquor amnii becomes absorbed, why do not the omentum and intestines adhere to the decaying fœtus? When the gestation is much prolonged this adhesion has been observed but it would appear that for a long time no adhesions are formed

Again, what is the explanation of the rush of waters when false labour set in? The amount was sufficient to soak the bedclothes when the woman returned to bed Did it come through the Fallopian tube or tubes? In Taylor's case what he took to be the fimbriated end of the Fallopian tube was incorporated with the placenta, but the remainder of the tube could not be traced I have not been able to trace any connexion between the right Fallopian tube and the placenta, but the tube on the left side was free and doubtless patent Owing to the rapid growth of the placenta it is easy to imagine that a delicate structure like the Fallopian tube could be so to speak overgrown and incorporated with the placental mass and this I think is worthy of consideration as an alternative to the view that the destruction has been due to tubal rupture

The ovary on the right side could also be identified but it is quite possible too that this organ could be destroyed by the placental growth. The ovary was smaller than that on the left side and was sclerosed and adhered to the broad ligament. Whether this had resulted from any interference with the ovarian circulation it is impossible to say The left ovary was free and of normal size and was covered on its inner surface by the amniotic sac The external surface of the left ovary and the fimbriated end of the left tube were outside the amniotic sac at least no trace of the sac was observed on them.

Surgical Treatment

I have already recorded an example of abdominal pregnancy in which a living fœtus at 4½ months was successfully removed The placenta was implanted in the posterior surface of the uterus the floor of Douglas's pouch and on the pelvic colon Previous to the removal of the placenta the main sources of vascular supply were controlled including a large artery coursing down the posterior surface of the uterus and then the placenta was rapidly separated and the placental site at once plugged with gauze, the raw surface on the intestine was treated by folding in the wall of the gut and overstitching with catgut A gauze plug was left in the pelvis and was subsequently withdrawn during convalescence

Thus in dealing with the placenta two important principles should be followed (1) to control the main vascular supply by preliminary ligature, and (2) to separate the placenta rapidly

In the case here recorded the position of the placenta was ideal as regards surgical treatment, for by means of a supravaginal hysterectomy the vascular supply was controlled and the placenta itself removed It was the toxic condition of the patient that militated against her ultimate recovery The advice to wait until the child is dead and the placenta thrombosed is hardly in harmony with the trend of modern surgery, moreover, the presence of infection is a serious factor which may mar the success of a future operation I think, therefore, that if the principle of preliminary ligature of the vascular supply be properly carried out there should be little difficulty in dealing with the living placenta

When an abdominal pregnancy is diagnosed with a living child, should we wait until the child is viable? It is true that living children have been extracted and have survived but there is no evidence concerning their future growth and development, and as many of the children in recorded cases have possessed deformities I believe the best practice is to operate at once as soon as the diagnosis is made

In conclusion, it is a source of great satisfaction to find that it is from investigations made in this country that many of the interesting problems in the life history of ectopic gestation have been unravelled, and that their elucidation forms a brilliant chapter in the history of British gynæcology The name of Lawson Tait will for ever stand forth as a pioneer in the surgical treatment

Bibliography:—Parry Extra uterine Pregnancy 1876 Taylor J W Extra uterine Pregnancy 1899 McCann Proceedings of the Royal Society of Medicine May 1913 p 229 and April 1910 p 1 Wimpole-street W

Proceedings of the Royal Society of Medicine April 1910 p 1

A MEDICAL LIBEL ACTION.—Mr F E Forward Mr F J W Sass and Dr W D Higson were plaintiffs in a recent action in the King's Bench Division in which they claimed damages for libel against the Women's Press Dr F Moxon Mrs E Pankhurst, Mrs M Tuke Mrs N D Fox and Mrs B Sanders who were sued personally and on behalf of the Women's Social and Political Union the Scottish Newspaper Publishing Company Limited and Messrs W H. Smith and Son The libels complained of were published in the *Suffragette* and made what were in effect charges of cruelty in respect of forcible feeding administered to women prisoners on hunger strike in Holloway Prison of which the plaintiffs at the material times were medical officers Dr Moxon the author of part of the matter complained of at first sought to justify but later wrote a letter from France where he is serving with the defences of drawing all charges against the plaintiffs The defences of the Women's Press Mrs Pankhurst Mrs Tuke Mrs Fox and Mrs. Sanders were struck out owing to their refusal to obey an order of the court The Scottish Newspaper Press having apologised a verdict was returned with regard to Messrs W H Smith upon which judgment was entered for them and damages were assessed against the other defendants for £750 to be divided equally among the three plaintiffs The plaintiffs are to be congratulated upon a result which amply vindicates their good name and which was indeed a foregone conclusion The unfortunate misled or deceived people who disseminated horrible accusations against members of the medical profession during the suffragette campaign have made amends

INDICATIONS AND CONTRA-INDICATIONS IN THE PNEUMOTHORAX TREATMENT OF PULMONARY TUBERCLE

BY CLIVE RIVIERE, M D LOND, F R C P LOND,
PHYSICIAN TO THE CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST VICTORIA PARK E. AND TO THE EAST LONDON HOSPITAL FOR CHILDREN SHADWELL, E

IN the year 1821 a distinguished British physiologist, James Carson of Liverpool, was urging on a seemingly apathetic profession the application of the newly recognised elasticity of the lung to practical therapeutic uses He pointed out the serious obstacle which was presented by the physical state of the lung, its condition of extension, its elasticity, and its constant movement, to the healing of injury within it and recommended its collapse to counteract these influences Thereby he declared, 'the diseased part would be placed in a quiescent state, receiving little or no disturbance from the movements of respiration which would be performed solely by the other lung, and the divided surfaces would be brought into close contact by the same resilient power which before had kept them asunder A wound or abscess in the lung would be placed in circumstances at least as favourable to the healing process as the same affections on any other part of the body" He proved by experiment on rabbits that animals could live quite well with one lung collapsed, and recommended the treatment for "consumption,' which, he pointed out was often found in one lung only in the earlier stages "In those cases in which the disease is placed in one of the lungs only, the remedy would appear to be simple, safe and complete"

Nearly a century has gone by and the brilliant foresight of Carson has at length received full recognition, not that so simple a theory as Carson put forward can be held fully to explain the value of pulmonary collapse in the treatment of phthisis, though the local effects he foreshadowed are by no means of negligible importance The tuberculosis literature of the world has for the past five years concerned itself above all else with the brilliant results of the pneumothorax treatment of phthisis But it is the continent and America that have supplied almost exclusively this literature In the British Isles, it must be admitted, the treatment has hitherto provoked but little general interest, and the prophet Carson has received among his own countrymen just that amount of honour which the world s history might have led us to anticipate A small band of pioneers among whom the names of Colebrook, Lillingston Vere Pearson, and Rhodes deserve special mention, have, indeed, long since planted the seed among us but the harvest has been small and the tuberculous Briton has been deprived hitherto of the blessings which his brilliant countryman promised a century ago and which the remainder of the phthisical world now enjoys

Since the success of pneumothorax treatment is bound up, above all else, in the selection of suitable cases, I have thought it worth while to put together here some of the general indications and contra indications for this treatment, and therewith to present a description of a particular class of case where pneumothorax therapy seems peculiarly indicated and leads especially to brilliant results We may conveniently start with a consideration of these cases

Clinically Unilateral Tuberculosis

It is one may suppose, common knowledge that the classical case for pneumothorax treatment is one of considerable one sided disease with the other lung clear, or nearly clear, to physical examination Such cases supplied the earliest material for treatment, and they still form the backbone of this treatment when it is conducted on what I would regard as suitably conservative lines But where it may be asked are such cases to be found? Experience teaches that in ordinary phthisis of adults disease has usually spread but a little way in one lung before it appears at the opposite apex and there seems but little chance that the better lung can remain clear while the disease on the affected side is spreading itself over the whole lung from apex to base. Clearly these cases of advanced one sided disease so suitable for pneumothorax treatment must be in many cases at least something other than ordinary apical phthisis, and their claim for consideration as a distinct group by themselves cannot afford to be disregarded

For the sake of illustrating certain points characteristic of this group I will refer shortly to some of my hospital pneumothorax material, since this has been in the main composed of cases of advanced one sided disease Among 20 such cases, all adults, where the type of disease could be decided with some probability, 17 appeared to stand in a group by themselves and to present certain points of difference from ordinary apical phthisis All of these cases showed disease covering the whole of one side, and in all of them the good lung was clear or practically clear of signs In 6 no signs of cavitation were present to physical examination but moist rales extended from apex to base, in 2 on the right side and in 4 on the left side In 11 definite cavity signs were present to clinical examination, and in most of these cavitation was considerable, but in all the cavitation showed one striking peculiarity In no case was it in proximity to the apex of the lung, in all the cavities were found comparatively low down in the lung Among 4 with right-sided disease, in 3 cavitation was mainly in the axillary region and in the fourth at the base. In the remaining 7 disease was on the left side and in 6 of these cavitation was just outside the heart about the middle of the lung, in the axilla or just above the heart In one it was basal In many of these cases no opportunity occurred for X ray examination before the lung was collapsed, so that the position of cavitation had to be decided by means of physical signs alone. Where X rays were used deep cavitation just outside the lung root was sometimes revealed In one case a deep cavity just above the heart, near the neck of the left fifth rib gave cavity signs at the surface over the same rib as far away as the axilla In practically all the cases marked evidence of fibrosis was present, and displacement of the heart and mediastinum was demonstrable, especially, as would be expected in the cases where cavitation had occurred

The good lung was clear of stethoscopic signs in all these cases save for the presence of a few doubtful signs, which proved on further observation to have been conducted from the diseased side. The use of the X rays however, soon dispelled all inclination to describe the better lung as "healthy" or even as "good.' In all cases there was present a very definite peribronchial tuberculosis spreading out from the hilus and often reaching two-thirds or even three-quarters of the way towards the surface This disease of the better lung appeared to be in most cases an arrested or quiet process Often it showed itself as a nodulated thickening of the lung reticulum, the nodules being in some cases fine but in others coarser Where the process was active larger shadows of lung infiltration were visible and the reticulated appearance failed. After some months successful pneumothorax treatment these larger shadows tended to become smaller and denser and gradually to fall into a pattern which followed the lines of the ordinary network of the lung Unlike cases of apical phthisis where the skiagram shows disease mainly occupying the lung between the root and the apex in these cases the disease is seen to spread out in all directions from the root and often to occupy mainly the middle third of the lung, or to branch in two or three directions of which the middle and lower are usually the most strikingly evident

It appears to be the rule, then, that in these cases, in spite of negative stethoscopic evidence, there is present in the better lung a considerable amount of healed or quiescent disease The appearance of this in a skiagram need in no way deter from pneumothorax treatment as long as the appearance suggests a quiet type of disease and physical signs are absent for the results of treatment are commonly as good in these cases as if the lung was really healthy With regard to the absence of physical signs, it is truly remarkable how near the surface of the lung this central disease even of active type, may reach without either moist sounds or alteration of breath sounds giving notice of its presence As far as the stethoscope gives warning we might be dealing with a healthy organ fully clear of disease And in this respect these cases remind us at once of certain other tuberculous conditions where, in spite of central disease, stethoscopic signs are absent over both lungs instead of, as in the cases just described, over one side of the chest

Hilus tuberculosis of children.—This is a condition where tuberculosis of chest glands is associated with a tuberculosis

A historical study of the subject of abdominal pregnancy reveals the interesting fact that the older writers divide what they termed "ventral pregnancies" into two classes, the primary and the secondary By primary is meant that class in which the fœtus is developed at once in the peritoneal cavity while in the second class are included all those cases in which the sac originally located in the tube or ovary has ruptured and the escaped fœtus goes on developing in the abdomen It should further be added that they believed in the existence of ovarian pregnancy I have no doubt their views will be substantiated by further research and experience, as has already been accomplished by the study of ovarian pregnancy and it will be established that although primary abdominal pregnancy is rare, yet that it does occur in the human female

I do not say the example here recorded is or is not a primary abdominal pregnancy for I can neither prove it nor disprove it, but I place it on record as a contribution towards the elucidation of this subject Let me, however, again refer to one or two points in the clinical history With the exception of the illness at the commencement of her pregnancy the patient had no acute pain, sudden illness, or fainting during the whole course of her pregnancy, and her husband informed me that she was remarkably well, and in this regard the history corresponds closely with that of the case recorded by the late Mr J W Taylor in the Transactions of the Obstetrical Society of London for 1897 He concluded that a "gradual erosion or giving way of the upper part of the tube had permitted the escape of the ovum into the abdominal cavity" In other words, his theory was made to fall into line with the views as to causation which were upheld at that time But with our present knowledge it is equally feasible to regard his case as one of primary abdominal pregnancy, a view which is strengthened by the clinical history The absence of abdominal illness at any time during the course of such a pregnancy is, in my opinion, strong presumptive evidence in favour of a primary abdominal implantation of the ovum

Now Dr Huston assures me that during the illness in August and September, 1915 when he was in attendance, and which has already been mentioned in the previous history of the case here recorded, there was no suggestion of any abdominal trouble Moreover, from a study of clinical histories it would appear that the abdominal fœtus has had a severe struggle to maintain its independent existence It is however remarkable that a woman can enjoy good health during the gestational period when the fœtus is in her abdominal cavity covered only by its amniotic sac Some recorded examples of abdominal pregnancy speak of the fœtus being free amongst the intestines This I believe to be a faulty observation for I should imagine that no fœtus would reach its full development unless enclosed in a sac and as the latter is as a rule opened when the abdominal cavity is opened it is easy to conclude that the fœtus is lying free Further, when the sac ruptures or the liquor amnii becomes absorbed, why do not the omentum and intestines adhere to the decaying fœtus? When the gestation is much prolonged this adhesion has been observed, but it would appear that for a long time no adhesions are formed

Again, what is the explanation of the rush of waters when false labour set in? The amount was sufficient to soak the bedclothes when the woman returned to bed Did it come through the Fallopian tube or tubes? In Taylor's case what he took to be the fimbriated end of the Fallopian tube was incorporated with the placenta but the remainder of the tube could not be traced I have not been able to trace any connexion between the right Fallopian tube and the placenta, but the tube on the left side was free and doubtless patent Owing to the rapid growth of the placenta it is easy to imagine that a delicate structure like the Fallopian tube could be so to speak overgrown and incorporated with the placental mass and this, I think is worthy of consideration as an alternative to the view that the destruction has been due to tubal rupture

The ovary on the right side could also be identified but it is quite possible too that this organ could be destroyed by the placental growth. The ovary was smaller than that on the left side and was sclerosed and adhered to the broad ligament Whether this had resulted from any interference with the ovarian circulation it is impossible to say The left ovary was free and of normal size and was covered on its inner surface by the amniotic sac The external surface of the left ovary and the fimbriated end of the left tube were outside the amniotic sac at least no trace of the sac was observed on them

Surgical Treatment

I have already recorded an example of abdominal pregnancy in which a living fœtus at 4½ months was successfully removed The placenta was implanted in the posterior surface of the uterus, the floor of Douglas's pouch and on the pelvic colon Previous to the removal of the placenta the main sources of vascular supply were controlled, including a large artery coursing down the posterior surface of the uterus, and then the placenta was rapidly separated and the placental site at once plugged with gauze, the raw surface on the intestine was treated by folding in the wall of the gut and overstitching with catgut A gauze plug was left in the pelvis and was subsequently withdrawn during convalescence

Thus in dealing with the placenta two important principles should be followed (1) to control the main vascular supply by preliminary ligature, and (2) to separate the placenta rapidly

In the case here recorded the position of the placenta was ideal as regards surgical treatment, for by means of a supravaginal hysterectomy the vascular supply was controlled and the placenta itself removed It was the toxic condition of the patient that militated against her ultimate recovery The advice to wait until the child is dead and the placenta thrombosed is hardly in harmony with the trend of modern surgery, moreover, the presence of infection is a serious factor which may mar the success of a future operation I think, therefore, that if the principle of preliminary ligature of the vascular supply be properly carried out there should be little difficulty in dealing with the living placenta

When an abdominal pregnancy is diagnosed with a living child, should we wait until the child is viable? It is true that living children have been extracted and have survived but there is no evidence concerning their future growth and development, and as many of the children in recorded cases have possessed deformities I believe the best practice is to operate at once as soon as the diagnosis is made

In conclusion, it is a source of great satisfaction to find that it is from investigations made in this country that many of the interesting problems in the life history of ectopic gestation have been unravelled, and that their elucidation forms a brilliant chapter in the history of British gynæcology The name of Lawson Tait will for ever stand forth as a pioneer in the surgical treatment

Bibliography—Parry Extra uterine Pregnancy 1876 Taylor J W: Extra uterine Pregnancy 1899 McCann Proceedings of the Royal Society of Medicine May 1913 p 229 and April 1910 p 149

Wimpole-street, W

* Proceedings of the Royal Society of Medicine April 1910 p 149

A MEDICAL LIBEL ACTION.—Mr F E Forward Mr F J W Sass and Dr W D Higson were plaintiffs in a recent action in the King's Bench Division in which they claimed damages for libel against the Women's Press Dr F Moxon, Mrs E Pankhurst, Mrs M Tuke Mrs N D Fox and Mrs B Sanders who were sued personally and on behalf of the Women's Social and Political Union the Scottish Newspaper Publishing Company Limited and Messrs W H Smith and Son The libels complained of were published in the *Suffragette* and made what were in effect charges of cruelty in respect of forcible feeding administered to women prisoners on hunger strike in Holloway Prison of which the plaintiffs at the material times were medical officers Dr Moxon the author of part of the matter complained of at first sought to justify but later wrote a letter from France where he is serving with drawing all charges against the plaintiffs The defences of the Women's Press Mrs Pankhurst Mrs Tuke Mrs Fox and Mrs Sanders were struck out owing to their refusal to obey an order of the court The Scottish Newspaper Press having apologised a verdict was returned with regard to Messrs W H Smith upon which judgment was entered for them and damages were assessed against the other defendants for £750 to be divided equally among the three plaintiffs The plaintiffs are to be congratulated upon a result which amply vindicates their good name and which was indeed a foregone conclusion The unauthorised or deceived people who disseminated horrible accusations against members of the medical profession during the suffrage riots may possibly take warning

somewhat of an enigma in pneumothorax treatment that, while in most cases disease in the good lung improves, in some disease is lighted up and increases It has seemed to me probable that it is particularly in apical cases that the latter experience is apt to arise, disease being generally fresh and active in place of the quiet and long standing lesions of hilus tuberculosis

Where, then, must the indications and contra indications be drawn in the case of apical phthisis? Forlanini tells us to *think of pneumothorax therapy as soon as ulcerative processes appear* in the lungs and this for the following reasons (*a*) The probability of disease remaining one sided becomes smaller the further disease advances, (*b*) the more advanced the disease the more is the likelihood of adhesions appearing and limiting, or altogether preventing, this treatment, (*c*) the more circumscribed the disease the more assurance is there that the lung will expand and functionate perfectly after the treatment is completed, and (*d*) the more advanced the disease the greater the risk of that fatal accident, perforation of the lung These warnings against delay are applicable, though in a different degree, to hilus tuberculosis no less than to apical phthisis, but in hilus tuberculosis it commonly happens that the extent of disease has only been realised when it is already far advanced. In apical phthisis the most important of these warnings is the first—namely, the likelihood of active disease appearing in the better lung and jeopardising, or altogether preventing treatment by artificial pneumothorax. As a rule this will have happened before the other three warnings need to be seriously taken to heart so that our main consideration must be the state of the other lung

The other lung—Most writers are of opinion that active disease in the opposite lung is a distinct contra indication for treatment, inactive or quiet disease is considered no bar These qualifications are obviously open to various interpretations, the decision must always be one directed to the individual case Zink found that even arrested lesions which extended beyond the upper lobe generally got worse. Spengler regards a fresh, active process of the other side as an absolute contra indication. Weiss, on the other hand, remarks that active lesions may sometimes be favourably influenced, he has at least seen them uninfluenced Forlanini holds that limited active lesions may improve He has described also two cases with double lesions too advanced to treat, but which later developed spontaneous pneumothorax. This was kept up artificially and resulted in a great improvement in both cases, proceeding in one to complete recovery On this account he suggests that some cases with double lesion should be given the chance and he and others have treated both lungs alternatively with some measure of success In this country, however, pneumothorax treatment must be regarded as still on its trial, and it should on that account be reserved as far as possible for cases strictly suitable Its use as a last resort in cases well nigh hopeless is at this stage of its history greatly to be deprecated Not only will it at times defeat its own purpose unless chosen with the greatest circumspection and actually hurry such cases to death, but also its failure to relieve is bound to bring it into undeserved discredit and thereby deprive other suitable cases from the lasting benefits it is able to confer Though it cannot perhaps be refused in certain cases where the chances are small, these important disqualifications should be borne in mind before consent is given to its trial

Early phthisis—A more important disqualification, in my opinion exists in the case of early phthisis The use of pneumothorax therapy in these cases can be shown on many grounds to be contra indicated In the first place it is unnecessary since early phthisis is a most curable disease by many other methods of treatment. In the second place it is inexpedient in that it brings with it risks and the chance of serious complications out of all relation to the benefits it can confer Pleural shock and gas embolism can perhaps be considered but infinitesimal risks where modern knowledge is properly applied, but they cannot be altogether eliminated, the chances of pleural effusion on the other hand and the troublesome deformities which may follow it cannot in any way be avoided Such effusions occur altogether in nearly 50 per cent of pneumothorax cases and though the shorter treatment required for slight disease would reduce this percentage yet effusions must occur in many, and expansion of the lung fail or be incomplete in a few Moreover the lung may become totally adherent and the patient be thereby deprived of this treatment at a later stage, if it should then be required.

Having considered, then, shortly the extremes which bound the limits of suitability on either hand we may return to the recommendation of Forlanini to think of pneumothorax treatment as soon as ulcerative processes appear in the lungs Cases of cavitation of anything but small extent, and cases where an infiltrative process progresses in spite of a fair trial of sanatorium treatment—these are the general indications in cases of apical phthisis Here we are speaking of chronic or fibro-caseous disease, the acuter forms of tubercle need special and separate consideration

Acute Forms of Tuberculosis

Miliary tuberculosis does not, of course, come into consideration The broncho-pneumonic forms are commonly so far bilateral that the question of pneumothorax therapy hardly arises Caseous pneumonic cases are generally one-sided at first, and have received this treatment with varying success at the hands of different operators Forlanini has not been fortunate in this class of case, but has found that disease always invades the opposite lung Saugman, however, has had success in a case of consolidation of the whole of one lung Dumarest also claims a cure in a case of this class Weiss treated 5 pneumonic cases, in 4 disease appeared on the opposite side, in one case as late as six months after, and death resulted In the fifth case, which was one of caseous pneumonia on the top of chronic phthisis, recovery occurred. I treated a broncho pneumonic case involving the whole of one lung, and with a fair amount of active central disease on the opposite side, the patient died of a rapidly developing œdema of the better lung I have also treated a case of caseous pneumonia with the best possible results up to the present I give brief particulars of the case

The patient aged 19, had been admitted to the London Hospital on Jan 21st, 1915, with a diagnosis of lobar pneumonia Acute onset two weeks previously, with rigor, pains in the right chest, dyspnœa, and cough There was consolidation of the whole of the right lung Temperature swinging between 100° and 101 5° or 102° F often highest in the early morning, pulse 100-112, respirations 28-32, wasting Tubercle bacilli found in the sputum on Jan 28th Returned home in *status quo* Feb 24th

The patient was seen by me early in March, 1915 He was admitted to hospital on March 10th wasted and ill, weight 6 st 13 lb, temperature 99°-100°, often larger fluctuations, occasionally of reversed type, pulse, 120, respirations 28 There was consolidation with crepitations over the whole right front and lower two-thirds back Large cavitation at base Left side clear, save for some crepitations outside the heart's apex and base behind

On March 23rd an artificial pneumothorax was initiated on the right side and soon made complete with displacement of the heart one inch outside the left nipple Intrapleural pressure was kept at + 10 to + 12 cm H_2O mean pressure, but at a later stage reduced to − 7 or 8 The lung appeared very stiff and solid to X rays and did not collapse to the usual dimensions The temperature was normal by April 10th, but the pulse not until the middle of May The patient began to leave his bed on April 28th He lost a few pounds in weight up to mid-June and afterwards gained steadily His general health progressed steadily and by August the left side was entirely clear He was then by mistake set to light gardening work Tubercle bacilli began to appear and to increase in the sputum of which there was still a trace, crepitations returned on the left side and by Oct 19th there were 3 inches of fluid in the right pleural cavity, rising to 5 inches in November and afterwards remaining stationary The fluid examined by Dr Roodhouse Glovne was of clear amber appearance, it contained 3 5 per cent of protein, a small deposit of endothelial cells was sterile and contained no tubercle bacilli No antibodies present. The patient has since remained well up and about with normal temperature sputum practically absent pulse, 88-92, respiration 24 His weight on Feb 2nd 1916, was 7st 10 lb 3 oz., a gain of 11 lb since admission Some fluid remains in the right pleural cavity, but as commonly happens in these cases it causes no inconvenience and will be left to absorb The patient has received in all 23 fillings of nitrogen in the ten months during which he has been under treatment

N B—By the end of March fluid was entirely absorbed weight 8 st. 2 lb on leaving hospital in April Has remained well and at work since

Hæmoptysis

There remains only hæmoptysis as an indication for pneumothorax treatment This may be an emergency

spreading out into the lung This is often a quiet peri bronchial process of both lungs leading to but few and even no symptoms, though at any point a broncho-pneumonic process may arise and more acute disease supervene In either condition stethoscopic signs of lung disease are generally absent in all but the later stages, and the presence of lung disease apart from X ray examination, can only be presumed on other grounds The chest signs, such as they are (impairment of note over the right side right inter-scapular impairment, blowing breath sounds at the apex, &c), are due to interference with certain lines of communication by glandular enlargement, and not to disease of the lung In many cases evidence of deep lung disease is given by the presence of the reflex bands of impairment over the back described by me in a recent communication [1] In adults such cases of hilus tuberculosis with glandular enlargement are uncommon, but they do occur and present similar signs to those outlined above

Hilus tuberculosis of adults —More commonly in adults a hilus tuberculosis occurs unaccompanied by any manifest glandular enlargement—a condition to which clinicians have hitherto paid but little attention though the radiographer has long recognised it, generally under the title of "peri bronchial tuberculosis" This seems to me an unfortunate nomenclature, for though tuberculosis spreading from the hilus is often largely or entirely of peribronchial type, yet a tuberculous peribronchitis may affect any region of the lung and cannot be considered the special prerogative of this central form of disease The failure of the clinician to recognise this group of cases is due, as a rule, to his failure to diagnose them In its slighter forms the disease may remain altogether subclinical In more inveterate attacks it is very commonly of chronic and insidious course, and the main symptom often a progressive dyspnœa associated sometimes with chronic bronchitis and emphysema and with asthmatic attacks indeed in many of these cases proof of the tuber culous nature of the disease entirely fails, and the peri bronchitis may very well be due to other causes of irritation In cases more manifestly tuberculous the course, and the appearance on occasions of hæmoptysis, or of sputum con taining tubercle bacilli, render the diagnosis of tubercle more certain But the signs may be of the slightest and readily overlooked in earlier stages Bronchitic râles are often present, and these may be more marked at, or even confined to, a limited area of the chest The percussion note to light percussion may be a trifle less good at one apex or all over one side, and Krönig's apical resonance is nearly always narrowed on one or both sides a most important sign In addition the reflex bands of im pairment described by me and already referred to are invariably present, and point to the presence of deep pulmonary disease which the X rays will generally render manifest

Now it seems to be a variety of this hilus tuberculosis which supplies these cases of apparent unilateral disease so favourable for treatment by artificial pneumothorax The spread through the lung is often, in all probability, a slow process marked by exacerbations and periods of arrest, and the surface is reached almost simultaneously all over the chest, giving signs over the whole side *But until this point* is reached stethoscopic signs will fail, and the presence of disease must hence be often overlooked, or at least its nature unrecognised It is probably only in the later stages that the toxæmia is sufficient to overcome tolerance and lead to "reactions" shown in fever and other symptoms and in "focal reactions" whereby the vicious circle of active autotoxic tuberculosis is established under which the patient will soon succumb unless the toxæmia can be arrested Hence the symptoms in these cases of very widespread but evidently also long standing disease are often of much shorter duration than the amount and nature of disease would seem to warrant A few months' history is often all that is obtainable in cases with extensive cavitation and with fibrosis leading to marked visceral displacement

There is good evidence that up to a certain point—namely the point where toxæmia definitely overcomes tolerance—hilus tuberculosis of adults is nearly always a disease of chronic course and favourable outlook and far more amenable to suitable treatment than is apical phthisis This tendency to arrest and cure shows itself strikingly even in such advanced cases as come under treatment by artificial pneumothorax It is but seldom that disease in the better lung, even if this is of moderately active nature fails to improve so soon as auto-inoculation is removed by collapse of its diseased companion organ

Now, the recognition of unilateral tuberculosis as a clinical entity is no new or original discovery In 1912 Straub and Otten,[2] working in von Romberg's clinic published a careful description of this one sided disease based on a study of 27 cases Furthermore they recognised its peculiar relationship to pneumothorax treatment and included in their study an analysis of 99 cases treated by Brauer after this method It will be well to consider shortly their descriptions of this type of disease The main characteristics on which they laid stress are the fact that the apex is not the oldest focus, and that cavitation does not appear here but deep in the lung and at a lower level They found that signs first appear over the front of the chest attacking on the right side, the base of the upper lobe, or less commonly the middle and lower lobe and on the left side the base of the upper lobe, especially in proximity to the outer border of the heart They noted that there was marked tendency to fibrosis and displacement of organs, and that disease ran a more chronic course on the left side than on the right, often proceeding to cavitation without complaint of either cough, sputum, fever, or pain On the right side they found disease spread through deep parts of the lung towards the axilla, but on the left side it tended at an early stage to reach the surface just above the heart in the second or third space near the sternal border, presenting signs of chronic disease, often with cavitation at this point They recognised the relationship to hilus tuber culosis of childhood, and traced its development therefrom Their 27 cases comprised many of early hilus disease in children and young people

While agreeing in the main with the description of the disease supplied by these authors a different experience on some points has persuaded me that their material and my own is too small to justify any hard and fast delineation of sub types or minor peculiarities Their main contention, however falls in with my own experience—namely, that there exists such a definite "vom hilus ausgehende" form of disease of different course and different prognosis to so-called "apical phthisis" and that certain more virulent of such cases form the most notable material for treatment by artificial pneumothorax An account of the more characteristic distribution, and hence the easier recognition of left-sided disease of this type an attempt was made by Straub and Otten to trace these cases among other tuberculous material within their reach Among 135 cases of pulmonary tuberculosis examined by them 10 or 7 4 per cent were left-sided cases of this type Brauer's 99 pneumothorax cases showed 48 on the right side and 51 on the left Among the latter, 17 or 33 per cent were certainly of this type, and a further 18 or 35 3 per cent, were very probably so The results of pneumothorax treatment among the left-sided cases are analysed as follows —

	Much improved	Improved	No change	Died
Hilus cases	10 = 53 8%	5 = 29 4%	—	2 11 [illegible]
Probably hilus	10 = 55 5%	4 = 22 2%	—	[illegible] 3 [illegible]
Not hilus	5 = 31 3%	3 = 18 7%	2 = 12 5%	6 37 5%

It is interesting to place beside these figures although not strictly comparable the results of ordinary hygienic dietetic treatment among Straub and Otten's 27 cases

	Much improved	Improved	No change	Died
All cases	2 = 10 5%	7 = 35%	3 15 7%	7 [illegible]

Apical Phthisis

After this brief description of a class of cases of supreme importance to the pneumothorax therapist we may pass on to the indications for collapse of the lung in cases of ordinary apical phthisis Here two points of contrast to the cases already described at once come into notice First disease cannot be allowed to advance far without the opposite lung becoming involved in active disease Secondly there is reason to suppose that disease in the good lung is a more serious threat to successful treatment in apical phthisis than it is in the case of hilus tuberculosis It has always seemed

[1] THE LANCET August 21st 1915 p 357

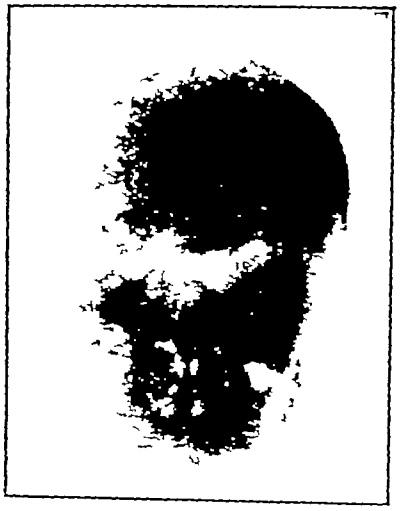
[2] Beiträge zur Hilusdrüsentuberkulose 1912, xxiii 1

Lesions of the visual path have been by no means uncommon during the present war, we have ourselves seen numerous examples of cortical and of subcortical lesions and of lesions of the optic radiations Such cases present features of interest which have been studied by many observers Lesions of the optic tract which are commonly associated with signs of pyramidal affection from injury to the adjacent crus cerebri, are far less common, an excellent example however has been published by Marie and Chatelin.[1] Lesions of the chiasma itself without implication of the long tracts of the brain stem are, however, still rarer

FIG 1.

Lateral radiogram of the head, showing a fragment of shrapnel casing lying close above the sella turcica.

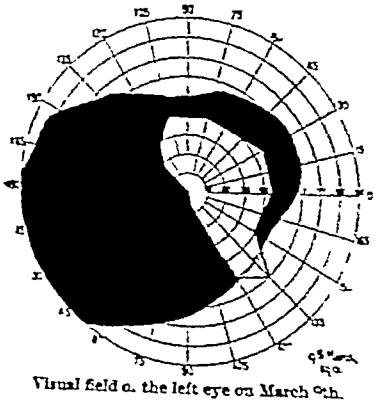
FIG 2.



Antero-posterio-radiogram of the head showing the position of the fragment close to the mesial plane on the left

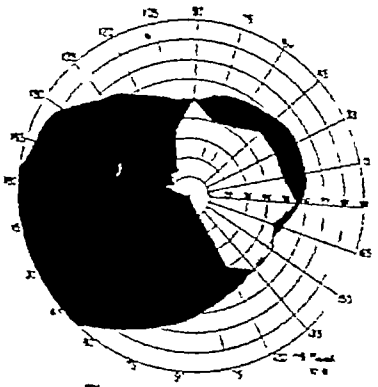
In the foregoing case the presence of an apparent left-sided hemianopia seemed at first to indicate a simple lesion of the right optic tract somewhere behind the chiasma The occurrence of the hemiopic pupillary reaction further limited the probable position of the lesion to a spot somewhere below the primary reflex visual centre in the right external geniculate body including the central fixation point of each eye It winds backwards, around the outer side of the crus cerebri, to the primary optic centre in the external geniculate body and anterior corpus quadrigeminum The farther backward

FIG 3



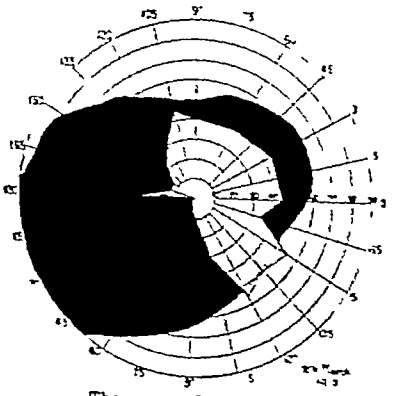
Visual field of the left eye on March 9th.

FIG 4



The same on March 15 h

FIG 5



The same on March 21st.

Further observations, however showed that it was not so simple as this

Let us recall for a moment some points in the anatomy of the visual path The fibres from each optic nerve run backwards to the optic chiasma. Here a partial decussation occurs (see Fig 6) so that the fibres from the right halves of both retinæ—i e from the left halves of both visual fields—after traversing the chiasma emerge behind it to form the right optic tract Similarly with the fibres from the left halves of the retinæ, which enter the left optic tract The macular or central visual fibres from the macula lutea of each eye are distributed in both optic tracts. As the chiasma is approached the fibres from the nasal halves of the retinæ (temporal halves of the fields) tend to become ventral in position while those from the temporal halves tend to become dorsal The macular bundle occupies a central position The optic tract emerging from the chiasma behind contains visual fibres from the whole contra lateral half of both visual fields

FIG 6

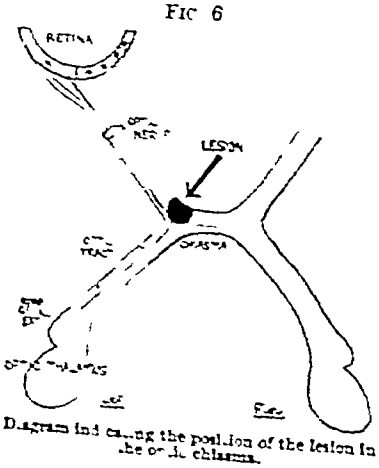


Diagram indicating the position of the lesion in the optic chiasma.

course of the visual fibres to the cortical half vision centre in the calcarine cortex does not concern us here.

In our case the apparent left sided hemianopia together with the hemiopic pupillary reaction seemed at first sight to point to an ordinary straightforward lesion of the right optic tract More careful study, however, showed that this was not the case Firstly the boundary between the blind and the seeing area of the visual field is not vertical, as in an ordinary tract lesion but oblique That is to say both lateral halves of the visual field are affected, including nearly the whole of the left field and a small sector of the right The incompleteness of the affection of the left field is further evidenced by the fact that there is also a small area of recovery extending outwards from the fixation point

Fig 6 is a diagram indicating the position of the lesion in this case. The lesion affects mainly the fibres destined for the right optic tract Some of them however, have escaped — viz., those corresponding to the upper and mesial sector of the blind field—also a smaller number corresponding to the area just above the horizontal plane directly

[1] Revue Neurologique 1915, p 1.12.

operation for a bleeding otherwise uncontrollable and likely to prove fatal, or it may be undertaken for cases of recurrent hæmoptysis I have treated a case of the latter class but adhesions have prevented the development of a really efficient pneumothorax Nevertheless, a relative immunity from attacks has resulted from a mere relaxation of the diseased lung Masenti Borgogno, and Vergano found that total collapse was not needed, nor even a positive intra pleural pressure to secure an arrest of the hæmorrhage A gas quantity between 250 and 1100 c c sufficed to attain this result in their five cases It is best, however to collapse the lung fully in these cases as in others whenever adhesions do not prevent it

Contra indications

Disease of other organs, whether tubercular or not, may contra indicate the production of an artificial pneumo thorax

Lungs —The question of the better lung *qua* tuberculosis has already received consideration Advanced emphysema and asthma are contra indications Dyspnœa is in itself no contra indication, since it is in many cases toxic in origin and is relieved by the removal of auto-inoculation

Circulatory organs and kidneys —Pneumothorax therapy may reduce the pulmonary vascular area in some cases at least, and thus put a strain on the right heart In addition, the loss or reduction of intrathoracic suction tends to embarrass the venous circulation The effect of these disabilities on circulatory organs and kidneys renders any serious disease of these organs a contra indication to pneumothorax therapy On the other hand, it must be noted that certain cases of nephritis appear to be of tuberculo-toxic origin, and have been known to recover when auto inoculation was removed

Laryngeal tuberculosis is no contra indication, unless very advanced, and then a doubtful one Da Gradi has described three bad cases from Forlanini's clinic improved or healed Slighter cases of laryngeal disease commonly improve, among 11 such cases mentioned by Zink all recovered except one very bad one, and that one improved very decidedly

Intestinal tuberculosis is a contra indication, unless slight and consequently latent Brauer and Spengler, however, record two cases where intestinal disease led to symptoms, and where these disappeared under pneumothorax treatment

Diabetes is a complication which should make the physician very chary of recommending pneumothorax treatment

Conclusions

At the conclusion it may be stated shortly that pneumo thorax treatment should be borne in mind in all cases where life is "threatened," but it must not be post poned till life is "in danger,' for it is mostly then too late ' The high function of pneumothorax therapy says Weiss, "is this—to restore lost cases to health", but the bad outlook must be recognised in good time if pneumothorax treatment is to succeed A phthisis case may be to the initiated "lost,' so far as ordinary methods of treatment are of avail, long before the end is in sight It is at this stage, or even before, that the suitability of pneumothorax treatment must be decided upon if a clear other lung absence of widespread adhesions and a re expansible lung are to be with any likelihood attained On the other hand it must be admitted that the advanced apparently unilateral, hilus tuberculosis cases are seldom met too late for this treatment and it is remarkable how often the pleura remains sufficiently unadherent to allow the production of an efficient pneumothorax over disease extend ing even from apex to base

Queen Anne-street W

THE LATE MR GEORGE VAWDREY, M R C S L R C P Edin —A handsome iron rood screen has been placed in Philiack Church as a memorial to the late Mr George Vawdrey

BATH CITY COUNCIL AND THE MEDICAL OFFICER OF HEALTH —Owing to some friction between the Bath city council and the medical officer of health (Dr W H Symons) the latter received an intimation to terminate his engage ment on July 17th Nine candidates were selected to appear before the sanitary committee last week of these five attended but subsequently withdrew their applications After a long discussion the council decided to continue the existing arrangements until after the war and to withdraw the notice to Dr Symons

A CASE OF OBLIQUE HEMIANOPIA FROM WOUND OF OPTIC CHIASMA

BY PURVES STEWART, C B, M D EDIN, F R C P LOND,
COLONEL, A M S CONSULTING PHYSICIAN TO H M FORCES
AND
A D GRIFFITH, B S LOND, F R C S ENG,
CAPTAIN R A M C (T) SPECIALIST IN OPHTHALMOLOGY

LESIONS of the chiasma without implication of the long tracts of the brain stem occur so infrequently that we deem the following case worthy of record

The patient, aged 24, was wounded on Jan 5th, 1916 and came under observation a week later He had multiple shrapnel wounds of both upper limbs and of the right lower limb In addition, one metallic fragment had entered through the right upper eyelid, destroying the right eye and lodging within the cranium, where radiography showed it to be about a quarter of an inch above and a quarter of an inch in front of the upper limit of the sella turcica It had crossed the mesial plane and was lying half an inch to the left of the middle line (See Figs 1 and 2) When hit the patient immediately became unconscious and had a sub sequent period of amnesia which lasted for several weeks throughout the attack of septic meningitis which followed Two days after his injury, on board the hospital ship, it was noted that he was completely blind and that the pupil of the uninjured left eye was widely dilated and insensitive to light The signs of severe meningitis rapidly increased with head ache, delirium, pyrexia, and head retraction For the first ten days the patient seemed moribund, and minute observa tions on his eyes were impossible He then began to improve and was more carefully examined on Jan 17th—i e, 12 days after the injury On this day the tempera ture, which since admission to hospital had been swinging between 100·8° and 103·4° F, was 101·8° The pulse, which had varied from 88 to 100, was 96 The patient was now able to reply intelligently to questions although still at times mildly delirious He complained of headache and cervical rigidity The right eyeball was com pletely disorganised and suppurating The left eye had no perception of light and its pupil was widely dilated and insensitive The left optic disc and fundus were normal. In particular, there was no pallor of the disc and no sus picion of optic neuritis The cranial nerves were otherwise normal There was no sensory or motor paralysis of the face, trunk, or limbs The knee jerks and ankle jerks were normal The plantar reflexes were of the normal flexor type Kernig's sign was well marked The cerebro spinal fluid was opaque and milky, on standing it showed a thick deposit of pus The meningitis gradually subsided during the next six weeks under treatment by urotropine internally, together with lumbar punctures on alternate days, the cerebro-spinal fluid becoming normal

On Jan 29th the right eye was excised The globe was found to be full of blood clot There was no obvious sup puration within the orbit On Feb 4th—i e a month after the injury—it was observed that some vision had returned in the left eye in the nasal half of the field, so that the patient could distinguish hand movements close to the eye On the 18th, when the meningitic symptoms had subsided and the cerebro spinal fluid had become almost clear, the hemianopia of the left field was confirmed From the 24th onward the temperature remained steadily normal On March 1st the lumbar punctures were discontinued

On March 9th a more careful examination of the left eye was made The optic disc was now diffusely pale and atrophic The left pupil was widely dilated and showed a typical hemiopic reaction—i e when a pencil of light was thrown on the sensitive temporal half of the retina the pupil contracted whereas a similar pencil of light thrown on to the blind nasal half of the retina produced no reaction The boundary between the blind and the seeing halves of the visual field was not vertical but oblique running through the 120 meridian (See Fig 3) On the 13th this obliquity of the hemianopic boundary was confirmed and a slight gain of vision was detected in the blind half of the field close to the fixation point (See Fig 4) On this day the vision was 1/60 By the 21st the vision had further improved to 5/60 and the visual field had also extended slightly more into the blind area both horizontally outwards and also in the 105 meridian downwards and inwards (see Fig 5) where the field had widened from the 8 circle to the 30 circle More over there was now a little vision directly downwards and even a trace in the 75 meridian downwards and outwards On the 23rd the pupillary reaction was no longer typically hemiopic, for now the pupil contracted to light thrown in from either side although more briskly to light from the seeing half of the visual field

of the type of minor operation for which this form of anæsthesia is suitable

Table showing Length of Time taken in the Induction and Duration of Analgesia

Operation	Time taken in induction of analgesia.	Duration of analgesia.	Remarks
	Seconds	Min sec.	
Multiple abscesses of neck incision and scraping	35	1 45	Complete analgesia
Removal of septic ingrowing toe-nail	40	2 0	
Circumcision	35	2 0	
Removal of septic ingrowing toe-nail	70	1 30	Shouted loudly no pain felt
Bubo incision and scraping	50	1 0	Complete analgesia.
Cutting off projecting portions of two phalanges with bone forceps	35	2 0	
Incision and scraping of axillary abscess	30	1 45	
Removal of two septic ingrowing toe-nails	45	2 30	

I am indebted to Dr Matheson, temporary Surgeon R N, for kindly taking the photographs

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL

TWO CASES OF THORACIC ANEURYSM

By GEORGE J CONFORD, M D OXON

THE aortic arch is recognised as the most usual situation for the development of aneurysm, but it is somewhat remarkable to have found the same unusual cause of death in two successive post-mortem examinations, while death had taken place in an exactly similar manner in both cases

CASE 1 —The patient was a sailor on a lightship aged 53 years, who had not complained of feeling ill until the moment of his fatal seizure On the evening of Dec 26th, 1915, while at supper, he complained of sudden pain in the chest His companions, seeing him turn very pale gave him some brandy and laid him on a seat, but he died almost immediately A post mortem examination was made by the coroner's order and the following conditions were revealed On opening the thorax the right pleural cavity was found full of clear serum and blood clot, there were no pleuritic adhesions and the lung was moderately collapsed but otherwise normal The aorta was enlarged, the ascending part of the arch being converted into an irregular somewhat fusiform sac, more prominent posteriorly Rupture had occurred at the posterior part of the sac near the origin of the innominate artery, and the mediastinal connective tissue was infiltrated with tough semi-organised blood clot, showing that oozing had been going on for some little time before the final catastrophe There is no record of any symptoms during life, and no physical examination had been made, as the man never had occasion to consult a medical practitioner for years past

CASE 2.—The patient was a soldier aged 33 years So far as could be ascertained he had never suffered pain or inconvenience until five days before his death, and presumably there were no abnormal physical signs, as he had recently been examined before readmission to the army On Feb 15th he complained of occasional difficulty in swallowing and had attended at the sick inspection room on this account On the 20 h he had been carrying a scuttle of coals and on returning, to his hut sat down on a bench and complained of sudden severe pain in his chest He rolled over on to his back and the medical officer was summoned attended at once but found him dead An order for a post mortem examination was given by the coroner and was made by me at the request of Dr W R Fetches the regimental medical officer The right pleural cavity was found full of serum and blood clot as in the previous case but the aneurysm was situated at the lower part of the transverse portion of the aortic arch was irregularly sacculated in shape and the walls were very thin in parts The interior of the sac was irregularly ridged and perforation had occurred at the periphery of a small secondary projection jutting out from the posterior part of the main sac Blood clot had infiltrated the mediastinal connective tissue, but was apparently quite recent and less tough than in the previous case The aneurysm must have pressed upon the trachea and œsophagus, but presumably only lightly, as the dysphagia had only been occasional, and there had never been any dyspnœa There was no alteration in the voice or other evidence of pressure on the recurrent laryngeal nerve There was some evidence of syphilis in this case in the form of scars, almost certainly of specific origin In neither case was there any marked degree of cardiac hypertrophy

The similarity of these cases in their termination, the complete absence of premonitory symptoms in the first and the slight previous evidence of illness in the second, appeared of sufficient interest for me to place them on simultaneous record

Felixstowe

A CASE OF PERFORATED TYPHOID ULCER OPERATION, ACUTE OBSTRUCTION, OPERATION, RECOVERY

By F M NEILD, M B, B S LOND

A SUCCESSFUL case of operation for a perforated typhoid ulcer is scarcely worth recording, if it were not for the fact that acute obstruction took place nine days after, necessitating a further operation which was also successful

The patient, a Portuguese half-caste boy aged 10, miserable, thin, and looking half starved, was said to have been always delicate He had a mild attack of typhoid lasting from Jan 25th to Feb 9th, 1915, Widal reaction positive After the temperature had been normal for nine days he had a severe relapse and became extremely ill In the early morning of March 9th he was seized with severe pain in the abdomen and vomited several times The sister (nun), however, did not send for me, and I only saw him at 10 A M on my usual round The temperature was 103° F, pulse 102, the abdomen was rigid and extremely tender, while the liver dullness was absent

Operation took place at 12 30 P M, about eight hours after the perforation took place A small perforation was found about 1½ feet from the ileo-cæcal valve, this was closed by a purse-string suture There were no signs of peritonitis except for a few shreds of lymph near the perforation A quantity of brown fluid was removed from the pelvis by dry sponging The boy's condition was very poor, so the wound was closed with through-and through silkworm gut sutures, a rubber drainage-tube being left in the lower end of the wound leading down into the pelvis The same evening he was very collapsed, temperature 96°, pulse 140 and very feeble, but he rallied with subcutaneous injections of saline and camphorated oil There was great difficulty in getting the bowels to move, and for the first two days no flatus was passed, and then only after the passage of a long rectal tube The drainage-tube was removed on the third day The bowels moved naturally on the fourth day and then every day once or twice until March 18th The stitches were removed on the 16th, owing to tension there was a good deal of sloughing and pus was oozing from the stitch holes

When I saw him on the morning of the 18th he seemed to be in great pain and had been vomiting continuously for several hours Temperature 97, pulse 140 very small and feeble The abdomen was distended but not markedly tender An enema produced no result and no flatus was passed after the passage of a rectal tube Operation was decided on but a very gloomy prognosis was given especially on account of the condition of the external wound The anæsthetic was ether, given by the open method The old wound was opened up The bulk of the small intestine was distended, but in the right iliac fossa a collapsed portion was seen a band of omentum passing down towards this On pulling up the bowel the obstruction was released and gas at once passed into the collapsed intestine The exact mechanism of the obstruction could not be seen, but it occurred at the site of the perforation The bowel wall here was denuded of peritoneum to a small extent This denuded area was closed over with Lembert sutures The abdominal wound was completely closed without drainage by through and through stitches The operation only lasted 15 minutes from start to finish His condition immediately afterwards was much better than before and no further vomiting took place Flatus was soon passed and the bowels were moved with castor oil on the second day The day following operation the patient was clamouring for food There was scarcely any rise of temperature after the operation The stitches were removed on the tenth day and recovery was uninterrupted

Shanghai

outwards from the fixation point These latter fibres, from their central position in nerve and chiasma, would be well protected from injury In addition, a number of fibres destined for the *left* optic tract are also implicated—viz, those corresponding to the lower and mesial sector of the right half of the visual field

EARLY ETHER ANALGESIA

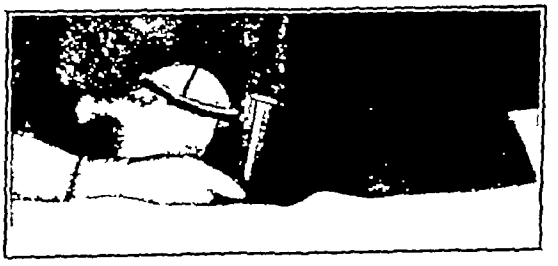
BY D P D WILKIE, M D, M CH EDIN, F R C S EDIN,
ACTING STAFF SURGEON R N V R.

THE question of the choice of anæsthetic for minor operations is one of perennial interest, but never more so than in war time, when, in the Services, minor operations acquire a new and peculiar importance For the class of case for which a local anæsthetic is unsuitable—e g, in dealing with inflamed tissues, and where a very brief though painful operation is necessary—such anæsthetics as nitrous oxide and ethyl chloride are commonly employed In hospitals the apparatus required for the administration of these anæsthetics will practically always be available Such is not the case, however, on active service on board ship or in the field, where the medical officer must, like the general practitioner, use methods which do not involve any cumbersome apparatus For him it remains to decide between chloroform and ether, with the disadvantages associated with full surgical anæsthesia in the case of both these drugs

For the past few years I have used ether as the anæsthetic in such cases, but have taken advantage of the transient stage of analgesia which supervenes when ether is supplied abundantly, long before the patient could be said to be "under" in the ordinary sense of the word I have found this method of anæsthesia exceedingly useful, as it is time saving and perfectly free from danger

In the text-books on anæsthetics which I have consulted I can find no reference to this method of employing ether

FIG 1



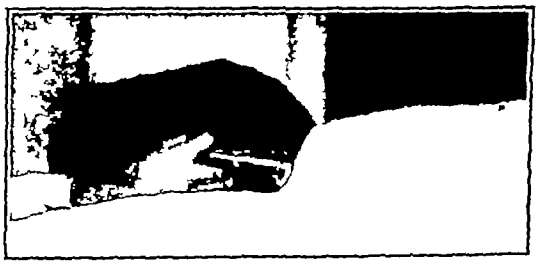
Materials required for inducing early ether analgesia the Schimmelbusch mask a measure containing 3 drachms of ether and a hand towel folded double

for minor operations The only reference I have found to this early stage of analgesia under ether is in Buxton's book on anæsthetics, where in describing the "second stage" of anæsthesia under ether the author states that "semi anæsthesia exists and pain even if slightly felt is seldom remembered as pain upon awakening" He points out that this is probably the degree of anæsthesia of which Plan wrote when he described patients who moved freely and appeared conscious but were nevertheless oblivious to the surgeon's knife During the war whilst serving in the navy, I have been able to give this method a thorough test and have endeavoured to standardise its use and now feel in a position to recommend it with confidence to the profession

In making practical use of this transient phase of analgesia certain conditions are essential for uniform success The ether vapour must be given concentrated from the start and the patient must inspire regularly and fairly deeply Neurotic and unwilling patients are therefore unsuitable

The only apparatus required is a Schimmelbusch mask (preferably the modified form described below) also a towel and a receptacle which will hold 3 drachms of ether The part to be operated upon having been cleansed and the operator being ready with the necessary instruments to hand, an ordinary hand towel folded double is laid across the patient's neck and chest, the mask is placed over his nose and mouth, and the ether (3 drachms) is measured out in readiness to pour on to the mask (Fig 1) The patient is warned to breathe quietly and deeply as soon as the ether is applied to the mask At a signal from the surgeon that all is ready the whole quantity of ether (3 drachms) is poured over the mask and the folded towel brought over the face and mask and kept closely applied (Fig 2) It will be found that in from 30 to 50 seconds provided that the patient breathes regularly, the stage of analgesia has set in and will last from 50 seconds to 3 minutes, the usual duration being slightly less than 2 minutes During this period the patient will usually remain quiet, even though inflamed parts are being forcibly dealt with as e g in removing a septic ingrowing toe nail, occasionally he

FIG 2

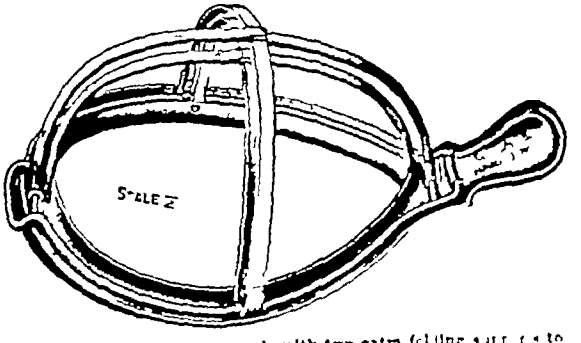


The analgesia induced the 3 drachms of ether have been poured over the mask the folded towel brought over and kept closely applied

will shout, though remaining quite still This may be disregarded, as on recovering a few moments later he will state that he has felt no pain Within one minute of completing the operation the patient is usually awake and is always in the best of humour, the ether having acted as a pleasant stimulant He is able to walk out of the theatre and to take a meal shortly afterwards There appear to be no unpleasant after effects

In administering the ether with the ordinary Schimmelbusch mask, it was found on applying the towel over the face and mask that some of the ether was absorbed by the towel and thus partly lost The modified mask which has two extra folding supports to keep the towel off the lint which is soaked with ether, is a distinct advantage (Fig 3) It is supplied by Messrs Allen and Hanburys Wigmore street, London, W, and will be found useful for the administration

FIG 3



A modified Schimmelbusch mask with two extra folding supports to keep the towel off the ether soaked lint

of ether by the "open" method when full surgical anæsthesia is desired a piece of Gamgee tissue with a central hole being laid over the outer hoops thereby preventing the too rapid evaporation of the ether without soaking up and wasting the drug

The following short list of cases given in tabular form showing the length of time used in the induction of analgesia and the duration of analgesia gives also an idea

of the type of minor operation for which this form of anæsthesia is suitable

Table showing Length of Time taken in the Induction and Duration of Analgesia

Operation	Time taken in induction of analgesia.	Duration of analgesia.	Remarks
	Seconds	Min. sec.	
Multiple abscesses of neck incision and scraping	35	1 45	Complete analgesia.
Removal of septic ingrowing toe-nail	40	2 0	
Circumcision	35	2 0	
Removal of septic ingrowing toe-nail	70	1 30	Shouted loudly no pain felt.
Bubo incision and scraping	50	1 0	Complete analgesia.
Cutting off projecting portions of two phalanges with bone forceps	35	2 0	
Incision and scraping of axillary abscess	30	1 45	
Removal of two septic ingrowing toe-nails.	45	2 30	

I am indebted to Dr Matheson, temporary Surgeon R N, for kindly taking the photographs

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL

TWO CASES OF THORACIC ANEURYSM

BY GEORGE J CONFORD, M.D OXON

THE aortic arch is recognised as the most usual situation for the development of aneurysm, but it is somewhat remarkable to have found the same unusual cause of death in two successive post mortem examinations, while death had taken place in an exactly similar manner in both cases

CASE 1 —The patient was a sailor on a lightship aged 53 years, who had not complained of feeling ill until the moment of his fatal seizure On the evening of Dec 26th, 1915 while at supper he complained of sudden pain in the chest His companions, seeing him turn very pale gave him some brandy and laid him on a seat, but he died almost immediately A post mortem examination was made by the coroner's order and the following conditions were revealed On opening the thorax the right pleural cavity was found full of clear serum and blood clot, there were no pleuritic adhesions and the lung was moderately collapsed but otherwise normal The aorta was enlarged, the ascending part of the arch being converted into an irregular somewhat fusiform sac more prominent posteriorly Rupture had occurred at the posterior part of the sac near the origin of the innominate artery and the mediastinal connective tissue was infiltrated with tough semi-organised blood clot showing that oozing had been going on for some little time before the final catastrophe There is no record of any symptoms during life, and no physical examination had been made, as the man never had occasion to consult a medical practitioner for years past

CASE 2 —The patient was a soldier aged 33 years So far as could be ascertained he had never suffered pain or inconvenience until five days before his death, and presumably there were no abnormal physical signs, as he had recently been examined before readmission to the army On Feb 15th he complained of occasional difficulty in swallowing and had attended at the sick inspection room on this account On the 20th he had been carrying a scuttle of coals and on returning to his hut sat down on a bench and complained of sudden severe pain in his chest He rolled over on to his back and the medical officer was summoned attended at once but found him dead An order for a post mortem examination was given by the coroner and was made by me at the request of Dr W R Fetches the regimental medical officer The right pleural cavity was found full of serum and blood clot as in the previous case but the aneurysm was situated at the lower part of the transverse portion of the aortic arch was irregularly sacculated in shape and the walls were very thin in parts The interior of the sac was irregularly ridged and perforation had occurred at the periphery of a small secondary projection jutting out from the posterior part of the main sac Blood clot had infiltrated the mediastinal connective tissue, but was apparently quite recent and less tough than in the previous case. The aneurysm must have pressed upon the trachea and œsophagus, but presumably only lightly, as the dysphagia had only been occasional; and there had never been any dyspnœa There was no alteration in the voice or other evidence of pressure on the recurrent laryngeal nerve There was some evidence of syphilis in this case in the form of scars almost certainly of specific origin In neither case was there any marked degree of cardiac hypertrophy

The similarity of these cases in their termination, the complete absence of premonitory symptoms in the first and the slight previous evidence of illness in the second, appeared of sufficient interest for me to place them on simultaneous record

Felixstowe

A CASE OF PERFORATED TYPHOID ULCER OPERATION, ACUTE OBSTRUCTION, OPERATION, RECOVERY

BY F M NEILD, M B, B S LOND

A SUCCESSFUL case of operation for a perforated typhoid ulcer is scarcely worth recording, if it were not for the fact that acute obstruction took place nine days after, necessitating a further operation which was also successful

The patient, a Portuguese half-caste boy aged 10, miserable, thin, and looking half starved, was said to have been always delicate He had a mild attack of typhoid lasting from Jan 25th to Feb 9th, 1915, Widal reaction positive After the temperature had been normal for nine days he had a severe relapse and became extremely ill In the early morning of March 9th he was seized with severe pain in the abdomen and vomited several times The sister (nun), however, did not send for me, and I only saw him at 10 A M on my usual round The temperature was 103° F, pulse 102, the abdomen was rigid and extremely tender, while the liver dullness was absent

Operation took place at 12.30 P M, about eight hours after the perforation took place A small perforation was found about 1½ feet from the ileo-cæcal valve, this was closed by a purse string suture There were no signs of peritonitis except for a few shreds of lymph near the perforation A quantity of brown fluid was removed from the pelvis by dry sponging The boy's condition was very poor, so the wound was closed with through and through silkworm gut sutures, a rubber drainage tube being left in the lower end of the wound leading down into the pelvis The same evening he was very collapsed, temperature 96°, pulse 140 and very feeble, but he rallied with subcutaneous injections of saline and camphorated oil There was great difficulty in getting the bowels to move, and for the first two days no flatus was passed, and then only after the passage of a long rectal tube The drainage tube was removed on the third day The bowels moved naturally on the fourth day and then every day once or twice until March 18th The stitches were removed on the 16th, owing to tension there was a good deal of sloughing and pus was oozing from the stitch holes

When I saw him on the morning of the 18th he seemed to be in great pain and had been vomiting continuously for several hours Temperature 97, pulse 140 very small and feeble The abdomen was distended, but not markedly tender An enema produced no result and no flatus was passed after the passage of a rectal tube Operation was decided on, but a very gloomy prognosis was given, especially on account of the condition of the external wound The anæsthetic was ether, given by the open method The old wound was opened up The bulk of the small intestine was distended, but in the right iliac fossa a collapsed portion was seen a band of omentum passing down towards this On pulling up the bowel the obstruction was released, and gas at once passed into the collapsed intestine The exact mechanism of the obstruction could not be seen, but it occurred at the site of the perforation The bowel wall here was denuded of peritoneum to a small extent This denuded area was closed over with Lembert sutures The abdominal wound was completely closed without drainage by through and through stitches The operation only lasted 15 minutes from start to finish His condition immediately afterwards was much better than before and no further vomiting took place Flatus was soon passed and the bowels were moved with castor oil on the second day The day following operation the patient was clamouring for food There was scarcely any rise of temperature after the operation The stitches were removed on the tenth day and recovery was uninterrupted.

Shanghai

Reviews and Notices of Books.

Operative Midwifery.

By J M MUNRO KERR, M D, C M Glasg, Professor of Obstetrics and Gynæcology, Glasgow University, Obstetric Physician to the Glasgow Maternity Hospital Third edition With 308 plates and figures in the text London Baillière, Tindall, and Cox 1916 Pp xvi + 725 Price 25s net

THE appearance of the third edition of Professor Munro Kerr's book on "Operative Midwifery" has been delayed by the war, and five years have elapsed since the second edition was published A good many alterations have been made in the text Thus the author s latest results in the treatment of contracted pelves, the application of forceps, the performance of pubiotomy, Cæsarean section, and other operative procedures have been added and increase the value of the work very considerably Five years' further experience has not led to any marked modification of the views held by the author on the many obstetric problems which he discusses and the result is a work embodying an exceptionally large experience of difficult cases of labour and containing a great deal of sound information It is interesting to note that the author is more and more convinced of the safety for both the mother and the child of spontaneous delivery in cases of contracted pelves, and his experience coincides with ours when he says that it is very difficult to convince other people of this fact Professor Munro Kerr s teaching as to the use of forceps in contracted pelves is very good By not applying the instrument until the head has been given adequate time to mould, by not applying it to the head above the brim or when there is a posterior parietal presentation, and by not continuing attempts at forceps delivery after two failures with a moderate degree of traction and the patient in Walcher's position, his results have very much improved

The chapter dealing with pubiotomy contains a well-balanced summary of the reasons for and against this operation That the author is not an undue advocate of the procedure is shown by the fact that while Cæsarean section has been performed 120 times in the Glasgow Maternity Hospital during the years 1900 to 1913, pubiotomy has only been practised on eight patients The interesting suggestion made by Rotter, of Budapest, in 1912 is alluded to He advised resection of the promontory of the sacrum in a contracted pelvis so as to produce permanent enlargement of the brim, and at the time he published his paper had practised the operation on nine patients The statistics furnished by the author of the results of the induction of premature labour for contracted pelves show that the fœtal mortality is not unduly high when the conjugata vera measures from 3¼–3½ inches, and that with more careful selection of the cases the mortality should be still further lowered, as has happened in these series of cases On the whole, however, Professor Munro Kerr cannot be called an enthusiastic advocate of the operation, but his opinion on the subject is the more valuable since his experience of the treatment of contracted pelves is large and his book shows that he does not condemn any method of treatment without good reasons

We can confidently recommend this third edition as a most trustworthy guide for the student and the practitioner

Text book on Nervous Diseases

By Professor H CURSCHMANN, of Mainz and 14 other Contributors (German and Austrian) Authorised English edition by CHARLES W BURR B S M D, Professor of Mental Diseases in the University of Pennsylvania. In two volumes With 156 text illustrations Philadelphia P Blakiston s Son and Co 1915 Pp 1132 Price $12 net the two volumes

Professor C W Burr has edited an English version of a recent text-book of nervous diseases compiled by various leading German and Austrian neurologists with Professor Curschmann of Mainz, as its general editor Neurology of to-day stands in intimate relation with internal medicine in general and with psychiatry in particular but it is also linked to ophthalmology otology dermatology bacteriology and serology and surgery As specialism increases with the sum of human knowledge there appears to be a widely disseminated feeling that the text-book of to-day should be a compilation a symposium, made up of individual contributions from specialists in various adjacent fields of study There are advantages and disadvantages alike in this method Professor Curschmann declares in his preface that he is not blindly following the fashion of the coöperative method in text book production, but that the peculiarity of neurology forces him to include the above allied sciences, in so far as they bear on neurology, in his presentation of the subject for the non specialist However concise and compact the individual contributions are, a text book of this description is apt to suffer from certain inequalities and tendencies to overlapping, and the different points of view are sometimes rather confusing to the beginner

Taken as a whole, the volumes under review contain a thoroughly up-to-date and instructive presentation of the science of neurology Some of the individual articles are excellent alike in matter and in style, others are valuable because they supply information not often so collected Professor Liepmann's chapter on the normal and pathological physiology of the brain, for instance, is a particularly good *multum in parvo* On the other hand, the article on "vasomotor and trophic diseases" is a curious conglomerate, for it includes certain diseases of the endocrine glands and omits others in an unsatisfactory fashion The editor has evidently been embarrassed by the question of what constitutes a nervous disease and what does not Exophthalmic goitre, myxœdema, and acromegaly are included, while the suprarenal gland is apparently taboo

The editor of the English edition has added a chapter on the diagnosis and treatment of neurasthenia, psychasthenia, hysteria, and borderland mental states, written from a different point of view from that of the original contributors to the same subjects The translation runs smoothly enough, but it shows evidence of different hands, and some parts—e g, the chapter on "general diagnostics of nervous diseases"—are not up to the level of translation of the rest of the book

Veterinary Therapeutics A Guide to the Treatment of Disease in the Domestic Animals

By E WALLIS HOARE, F R C V S Lecturer on Veterinary Hygiene, University College, Cork Third edition London Baillière, Tindall, and Cox 1916 Pp 943 Price 18s net

THIS well known text-book has been revised and modernised by the author As in previous editions the subject matter is divided into three main parts The first section contains a valuable account of the care, management, and nursing of sick animals The difficulties with which practising veterinary surgeons have to deal are legion and often imperfectly understood by owners and attendants, who may obtain from these pages an intelligent understanding of the carrying out of hygienic and dietetic measures among ailing animal patients In the care management, and nursing of cattle, dogs, cats, and birds, stress is laid on the fact that drugs only aid the power of recovery, they do not ensure it, hence routine and repeated drugging is condemned Other matters discussed in this section are the diagnosis and general symptoms of disease, the actions and uses of drugs and the administration of medicines Part II deals with materia medica avoiding elaborate detail of manufacture, and giving the knowledge necessary to the student and practitioner for the application of the remedies to disease Where the employment of one salt of an element is more advantageous than another the fact is noted and the reason given The list of preparations is very complete comprising both modern as well as older and well tried remedies A chapter is devoted to the various vaccines and serums used in veterinary practice Part III is taken up with the special therapeutics of various diseases and includes chapters on the care management and nursing of sick sheep and pigs A feature of the book is the account given of the actions of drugs as obtained from animal experiment

In the production of his book the author has had the coöperation of Messrs H Beck F R C V S G Marall M R C V S W M Scott F R C V S and H Gray M R C V S It marks a distinct advance on any thing yet published in this special sphere is well arranged and carefully indexed

LIBRARY TABLE

A New Treatment for Gonorrhœa By CHARLES RUSS, M B Lond London H K. Lewis and Co Pp 38 Price 3s net —In this small work the author describes a system of treatment applied by him in recent years to the cure of gonorrhœa It is founded on experimental studies of the effects resulting from the passage of a constant electric current on bacteria immersed in fluid It is claimed that the current causes the bacteria to accumulate gradually at the positive electrode and to bring about the death of the organisms in a short space of time The method consists in passing a platinised catheter down to the compressor urethræ This catheter has numerous perforations and is furnished with a stylet of platinum wire which just enters the meatus A lint covered pad with a metallic core, soaked in warm saline is placed on the perineum and a 2 per cent solution of sodium iodide is injected into the catheter The pad is then connected with the negative and the stylet within the catheter to the positive pole of the battery At the end of each treatment the perforations in the catheter are filled with masses of muco-pus, which on microscopic examination are found to be swarming with killed gonococci. The author claims that in this way a simple and limited attack of gonorrhœa can be cured in from 10 to 20 administrations and that complications are extremely rare This treatment has had no wide application at present, and experience alone can decide as to its efficacy It has not been found very successful for suppuration in general, and it would seem improbable that the electro-chemical reactions could penetrate into all the lacunæ and glands of the urethra without causing damage of tissues

Pye s Surgical Handicraft A Manual of Surgical Manipulations Minor Surgery, and Other Matters connected with the Work of House Surgeons and Surgical Dressers Edited and largely rewritten by W H CLAYTON GREENE, B A., M B, B C Camb, F R C S Eng, Surgeon to St Mary s Hospital Seventh edition, fully revised Bristol John Wright and Sons, Limited, London Simpkin, Marshall, Hamilton, Kent, and Co, Limited 1916 Pp 614 Price 15s net — A new edition of this well known work is especially timely just now when the house surgeons and surgical dressers, for whom it is primarily intended, are working with less help from senior and experienced officers than was the case in more fortunate times The book remains a safe guide for them and a useful work of reference also for the practitioner whose memory may now and then fail him on a point of minor surgery or the application of a contrivance Some sections have been revised and some rewritten, and the book has been made more complete by the inclusion of a useful and well illustrated chapter on the use of X rays from the pen of Dr Harrison Orton In its newest form "Pye" will continue to enjoy popularity

The Drink Problem of To-day in its Medico-Psychological Aspects Edited by T N KELYNACK M D Vict, Honorary Secretary of the Society for the Study of Inebriety, Editor of the *British Journal of Inebriety* London Methuen and Co 1916 Pp 316 Price 7s 6d net — This book is a revised and enlarged edition of "The Drink Problem" a collection of essays on the various biological and sociological aspects of alcoholism which was published in "Methuen s New Library of Medicine" in 1907 In the production of the present volume the editor, Dr T N Kelynack, has had the assistance of most of the experts who collaborated with him in the earlier publication, and he has also secured several additional contributions of value from other writers qualified by their special knowledge and experience to speak with authority on particular aspects of this complex question Amongst these new chapters may be indicated an admirable essay on Alcohol and War, by Sir A. Pearce Gould, a vigorous if somewhat controversial discussion of the principles of temperance legislation by Sir T P Whittaker, a clear and concise review of the medico legal relations of alcoholism, by Sir W J Collins, and a very interesting survey of the history of opinion with reference to the alcohol question by Mr J Turner Rae By the inclusion of this fresh matter, and as a result of the very extensive revision of the older chapters most of which have been practically rewritten the book has acquired many of the characters of a new work. With such a multiplicity of contributors—each of the 15 chapters is from a different hand—it is obviously difficult to maintain a unity of outlook and a uniformly high level of quality, but on the whole the work is very little open to criticism with respect to either of these points And it also shows singularly little evidence of the defects of omission and overlapping which are so frequently incidental to the method of collaboration Most of the contributors hold strong temperance views, and this fact has in a few instances led to a slightly over emphatic presentation of the possible dangers of alcohol But such lapses are very rare and are confined to a few chapters The work as a whole is written in an eminently fair and temperate spirit, and with a regard for the scientific canons of evidence which is not always a conspicuous feature of the literature of the subject The circumstances of the moment have brought the problem of alcoholism into special prominence, and it is a matter of urgent importance that public opinion should be educated to appreciate the fundamental factors of that problem and to understand the principles of which account must be taken in efforts to arrive at its solution This volume is well fitted to assist in such an educational process, and we trust that it will be as widely read as its merits deserve It should be added that the value of the work has been very much enhanced by an extremely full and admirably arranged index

Practical Cystoscopy and the Diagnosis of Surgical Diseases of the Kidney and Urinary Bladder By PAUL M PILCHER, A.M, M D, Consulting Surgeon to the Eastern Long Island Hospital Second edition, thoroughly revised With 299 illustrations 29 being in colours London and Philadelphia W B Saunders Company Pp 398 Price 25s net.—Only a few years have elapsed since the student of urinary surgery was in a position to complain of the want of text-books dealing with the cystoscopic examination of the bladder That reproach to surgical authorship has certainly been removed, for now there are several works dealing with this subject and one of the best of these is the volume before us In his second edition Dr Pilcher has maintained the high level which he reached in the first There are many alterations, but the main change has been in the recognition of the great importance of pyelography, and to this method of diagnosis a new section has been devoted, the technique is clearly described and the value of the indications afforded by cystoscopy is discussed in an unbiassed manner Several excellent "pyelograms" are also given Altogether we can commend this text-book

Emergency Surgery By JOHN W SLUSS, A M, M D Associate Professor of Surgery, Indiana University School of Medicine, ex Superintendent of the Indianapolis City Hospital. Third edition, revised and enlarged. With 685 illustrations, some of which are printed in colours London William Heinemann (Rebman Limited) Pp 832 Price 17s 6d net —This edition maintains the excellence of the earlier issues and the additions made by the author have brought it up to the level of the recent advances of surgery Especial attention has been devoted to the subject of fractures, and the author has entirely rewritten the chapter on military surgery to make it accord with the lessons learned in the present war The book has been written for the benefit of the general practitioner, and though many operations are described in it which the practitioner would not undertake in ordinary circumstances, yet in emergencies it is difficult to limit what he may have to do It is wise, therefore, to include too much rather than to omit anything which might be needed The book is well and clearly written, many of the illustrations are original, and those which have been borrowed from other sources have been chosen wisely

JOURNALS

Physiological Abstracts Vol I Nos. 1-4 London H K Lewis and Co Published monthly Annual subscription 25s, post free —Earlier in the year we announced the impending publication of a new journal with the above title which is a venture of the Physiological Society of Great Britain and Ireland with the coöperation of the American Physiological Society and of other societies and savants in eight countries Four monthly numbers have now appeared, the latest of which for July contains 224 separate abstracts, and we take this opportunity of congratulating the editor (Professor W D Halliburton) and his staff of abstractors on the excellent character of the periodical and of commending it to all those who are interested in the advances being made in physiology and its sister sciences The war has considerably curtailed research work in European countries, and we note that America just now takes the lead in the number of papers published Representative physiologists of allied and

Reviews and Notices of Books.

Operative Midwifery.

By J M MUNRO KERR, M D, C M Glasg, Professor of Obstetrics and Gynæcology, Glasgow University, Obstetric Physician to the Glasgow Maternity Hospital Third edition With 308 plates and figures in the text London Baillière, Tindall, and Cox 1916 Pp xvi + 725 Price 25s net

THE appearance of the third edition of Professor Munro Kerr's book on "Operative Midwifery" has been delayed by the war, and five years have elapsed since the second edition was published A good many alterations have been made in the text Thus the author's latest results in the treatment of contracted pelves, the application of forceps, the performance of pubiotomy, Cæsarean section, and other operative procedures have been added and increase the value of the work very considerably Five years' further experience has not led to any marked modification of the views held by the author on the many obstetric problems which he discusses and the result is a work embodying an exceptionally large experience of difficult cases of labour and containing a great deal of sound information It is interesting to note that the author is more and more convinced of the safety for both the mother and the child of spontaneous delivery in cases of contracted pelves, and his experience coincides with ours when he says that it is very difficult to convince other people of this fact Professor Munro Kerr's teaching as to the use of forceps in contracted pelves is very good By not applying the instrument until the head has been given adequate time to mould, by not applying it to the head above the brim or when there is a posterior parietal presentation, and by not continuing attempts at forceps delivery after two failures with a moderate degree of traction and the patient in Walcher's position, his results have very much improved

The chapter dealing with pubiotomy contains a well balanced summary of the reasons for and against this operation That the author is not an undue advocate of the procedure is shown by the fact that while Cæsarean section has been performed 120 times in the Glasgow Maternity Hospital during the years 1900 to 1913, pubiotomy has only been practised on eight patients The interesting suggestion made by Rotter, of Budapest, in 1912 is alluded to He advised resection of the promontory of the sacrum in a contracted pelvis so as to produce permanent enlargement of the brim, and at the time he published his paper had practised the operation on nine patients The statistics furnished by the author of the results of the induction of premature labour for contracted pelves show that the fœtal mortality is not unduly high when the conjugata vera measures from 3¼–3½ inches, and that with more careful selection of the cases the mortality should be still further lowered, as has happened in these series of cases On the whole, however, Professor Munro Kerr cannot be called an enthusiastic advocate of the operation, but his opinion on the subject is the more valuable since his experience of the treatment of contracted pelves is large, and his book shows that he does not condemn any method of treatment without good reasons

We can confidently recommend this third edition as a most trustworthy guide for the student and the practitioner

Text book on Nervous Diseases

By Professor H CURSCHMANN, of Mainz and 14 other Contributors (German and Austrian) Authorised English edition by CHARLES W BURR, B S, M D, Professor of Mental Diseases in the University of Pennsylvania In two volumes With 156 text illustrations Philadelphia P Blakiston's Son and Co 1915 Pp 1132 Price $12 net the two volumes

Professor C W Burr has edited an English version of a recent text book of nervous diseases compiled by various leading German and Austrian neurologists, with Professor Curschmann of Mainz, as its general editor Neurology of to-day stands in intimate relation with internal medicine in general and with psychiatry in particular but it is also linked to ophthalmology otology dermatology bacteriology and serology and surgery As specialism increases with the sum of human knowledge there appears to be a widely disseminated feeling that the text-book of to-day should be a compilation a symposium, made up of individual contributions from specialists in various adjacent fields of study There are advantages and disadvantages alike in this method Professor Curschmann declares in his preface that he is not blindly following the fashion of the coöperative method in text book production, but that the peculiarity of neurology forces him to include the above allied sciences, in so far as they bear on neurology, in his presentation of the subject for the non specialist However concise and compact the individual contributions are, a text book of this description is apt to suffer from certain inequalities and tendencies to overlapping, and the different points of view are sometimes rather confusing to the beginner

Taken as a whole, the volumes under review contain a thoroughly up-to-date and instructive presentation of the science of neurology Some of the individual articles are excellent alike in matter and in style, others are valuable because they supply information not often so collected Professor Liepmann's chapter on the normal and pathological physiology of the brain, for instance, is a particularly good *multum in parvo* On the other hand, the article on "vasomotor and trophic diseases" is a curious conglomerate, for it includes certain diseases of the endocrine glands and omits others in an unsatisfactory fashion The editor has evidently been embarrassed by the question of what constitutes a nervous disease and what does not Exophthalmic goitre, myxœdema, and acromegaly are included, while the suprarenal gland is apparently taboo

The editor of the English edition has added a chapter on the diagnosis and treatment of neurasthenia, psychasthenia, hysteria, and borderland mental states, written from a different point of view from that of the original contributors to the same subjects The translation runs smoothly enough, but it shows evidence of different hands, and some parts—e g, the chapter on "general diagnostics of nervous diseases"—are not up to the level of translation of the rest of the book

Veterinary Therapeutics A Guide to the Treatment of Disease in the Domestic Animals

By E WALLIS HOARE, F R C V S Lecturer on Veterinary Hygiene, University College, Cork Third edition London Baillière, Tindall, and Cox 1916 Pp 943 Price 18s net

THIS well known text book has been revised and modernised by the author As in previous editions the subject matter is divided into three main parts The first section contains a valuable account of the care, management and nursing of sick animals The difficulties with which practising veterinary surgeons have to deal are legion and often imperfectly understood by owners and attendants, who may obtain from these pages an intelligent understanding of the carrying out of hygienic and dietetic measures among ailing animal patients In the care management, and nursing of cattle, dogs, cats, and birds, stress is laid on the fact that drugs only aid the power of recovery, they do not ensure it, hence routine and repeated drugging is condemned Other matters discussed in this section are the diagnosis and general symptoms of disease, the actions and uses of drugs and the administration of medicines Part II deals with materia medica avoiding elaborate detail of manufacture and giving the knowledge necessary to the student and practitioner for the application of the remedies to disease Where the employment of one salt of an element is more advantageous than another the fact is noted and the reason given The list of preparations is very complete comprising both modern as well as older and well tried remedies A chapter is devoted to the various vaccines and serums used in veterinary practice Part III is taken up with the special therapeutics of various diseases and includes chapters on the care management and nursing of sick sheep and pigs A feature of the book is the account given of the actions of drugs as obtained from animal experiment

In the production of his book the author has had the coöperation of Messrs H Begg F R C V S G Marall M R C V S W M Scott F R C V S, and H Gray M R C V S It marks a distinct advance on anything yet published in this special sphere is well arranged and carefully indexed

LIBRARY TABLE

A New Treatment for Gonorrhœa By CHARLES RUSS M B Lond. London H K. Lewis and Co Pp 38 Price 3s net —In this small work the author describes a system of treatment applied by him in recent years to the cure of gonorrhœa It is founded on experimental studies of the effects resulting from the passage of a constant electric current on bacteria immersed in fluid It is claimed that the current causes the bacteria to accumulate gradually at the positive electrode and to bring about the death of the organisms in a short space of time The method consists in passing a platinised catheter down to the compressor urethræ. This catheter has numerous perforations and is furnished with a stylet of platinum wire which just enters the meatus A lint-covered pad with a metallic core, soaked in warm saline is placed on the perineum and a 2 per cent solution of sodium iodide is injected into the catheter The pad is then connected with the negative and the stylet within the catheter to the positive pole of the battery At the end of each treatment the perforations in the catheter are filled with masses of muco-pus, which on microscopic examination are found to be swarming with killed gonococci. The author claims that in this way a simple and limited attack of gonorrhœa can be cured in from 10 to 20 administrations and that complications are extremely rare This treatment has had no wide application at present, and experience alone can decide as to its efficacy It has not been found very successful for suppuration in general, and it would seem improbable that the electro-chemical reactions could penetrate into all the lacunæ and glands of the urethra without causing damage of tissues

Pye's Surgical Handicraft A Manual of Surgical Manipulations Minor Surgery, and Other Matters connected with the Work of House Surgeons and Surgical Dressers Edited and largely rewritten by W H. CLAYTON GREENE, B A., M B, B C Camb F R C S Eng Surgeon to St. Mary's Hospital. Seventh edition, fully revised Bristol John Wright and Sons, Limited, London Simpkin Marshall, Hamilton, Kent, and Co, Limited. 1916 Pp 614 Price 15s net — A new edition of this well known work is especially timely just now when the house surgeons and surgical dressers for whom it is primarily intended are working with less help from senior and experienced officers than was the case in more fortunate times The book remains a safe guide for them and a useful work of reference also for the practitioner whose memory may now and then fail him on a point of minor surgery or the application of a contrivance Some sections have been revised and some rewritten and the book has been made more complete by the inclusion of a useful and well illustrated chapter on the use of X rays from the pen of Dr Harrison Orton. In its newest form "Pye" will continue to enjoy popularity

The Drink Problem of To-day in its Medico-Psychological Aspects Edited by T N KELYNACK M D Vict, Honorary Secretary of the Society for the Study of Inebriety, Editor of the *British Journal of Inebriety* London Methuen and Co 1916 Pp. 316 Price 7s 6d net — This book is a revised and enlarged edition of "The Drink Problem,' a collection of essays on the various biological and sociological aspects of alcoholism which was published in Methuen's New Library of Medicine' in 1907 In the production of the present volume the editor, Dr T N Kelynack, has had the assistance of most of the experts who collaborated with him in the earlier publication and he has also secured several additional contributions of value from other writers qualified by their special knowledge and experience to speak with authority on particular aspects of this complex question Amongst these new chapters may be indicated an admirable essay on Alcohol and War by Sir A Pearce Gould, a vigorous if somewhat controversial discussion of the principles of temperance legislation by Sir T P Whittaker, a clear and concise review of the medico-legal relations of alcoholism by Sir W J Collins, and a very interesting survey of the history of opinion with reference to the alcohol question by Mr J Turner Rae By the inclusion of this fresh matter and as a result of the very extensive revision of the older chapters most of which have been practically rewritten the book has acquired many of the characters of a new work With such a multiplicity of contributors—each of the 15 chapters is from a different hand—it is obviously difficult to maintain a unity of outlook and a uniformly high level of quality, but on the whole, the work is very little open to criticism with respect to either of these points And it also shows singularly little evidence of the defects of omission and overlapping which are so frequently incidental to the method of collaboration Most of the contributors hold strong temperance views, and this fact has in a few instances led to a slightly over emphatic presentation of the possible dangers of alcohol But such lapses are very rare and are confined to a few chapters The work as a whole is written in an eminently fair and temperate spirit, and with a regard for the scientific canons of evidence which is not always a conspicuous feature of the literature of the subject The circumstances of the moment have brought the problem of alcoholism into special prominence, and it is a matter of urgent importance that public opinion should be educated to appreciate the fundamental factors of that problem and to understand the principles of which account must be taken in efforts to arrive at its solution This volume is well fitted to assist in such an educational process, and we trust that it will be as widely read as its merits deserve It should be added that the value of the work has been very much enhanced by an extremely full and admirably arranged index

Practical Cystoscopy and the Diagnosis of Surgical Diseases of the Kidney and Urinary Bladder By PAUL M PILCHER, A.M, M D, Consulting Surgeon to the Eastern Long Island Hospital Second edition, thoroughly revised With 299 illustrations 29 being in colours London and Philadelphia W B Saunders Company Pp 398 Price 25s net.—Only a few years have elapsed since the student of urinary surgery was in a position to complain of the want of text-books dealing with the cystoscopic examination of the bladder That reproach to surgical authorship has certainly been removed, for now there are several works dealing with this subject and one of the best of these is the volume before us In his second edition Dr Pilcher has maintained the high level which he reached in the first There are many alterations, but the main change has been in the recognition of the great importance of pyelography, and to this method of diagnosis a new section has been devoted, the technique is clearly described and the value of the indications afforded by cystoscopy is discussed in an unbiassed manner Several excellent 'pyelograms" are also given Altogether we can commend this text-book.

Emergency Surgery By JOHN W SLUSS A.M., M.D Associate Professor of Surgery, Indiana University School of Medicine, ex Superintendent of the Indianapolis City Hospital. Third edition, revised and enlarged. With 685 illustrations some of which are printed in colours London William Heinemann (Rebman Limited) Pp 832 Price 17s 6d net —This edition maintains the excellence of the earlier issues and the additions made by the author have brought it up to the level of the recent advances of surgery Especial attention has been devoted to the subject of fractures and the author has entirely rewritten the chapter on military surgery to make it accord with the lessons learned in the present war The book has been written for the benefit of the general practitioner and though many operations are described in it which the practitioner would not undertake in ordinary circumstances, yet in emergencies it is difficult to limit what he may have to do It is wise, therefore, to include too much rather than to omit anything which might be needed The book is well and clearly written, many of the illustrations are original, and those which have been borrowed from other sources have been chosen wisely

JOURNALS

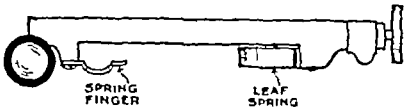
Physiological Abstracts Vol. I Nos. 1-4 London H K Lewis and Co Published monthly Annual subscription 25s post free —Earlier in the year we announced the impending publication of a new journal with the above title, which is a venture of the Physiological Society of Great Britain and Ireland with the coöperation of the American Physiological Society and of other societies and savants in eight countries Four monthly numbers have now appeared, the latest of which for July contains 224 separate abstracts, and we take this opportunity of congratulating the editor (Professor W D Halliburton) and his staff of abstractors on the excellent character of the periodical and of commending it to all those who are interested in the advances being made in physiology and its sister sciences The war has considerably curtailed research work in European countries, and we note that America just now takes the lead in the number of papers published Representative physiologists of allied and

neutral countries are collaborating in this work of replacing similar periodicals which have hitherto been published in Germany, and we note with pleasure how prompt has been the work of the abstractors, in this feature the new publication compares very favourably with its German predecessors We anticipate a brilliant future for *Physiological Abstracts* and wish it every success

New Inventions

A NEW MECHANICAL STAGE

IN addition to the usual advantages of a mechanical stage, the invention here illustrated is easily fixed to, and unfixed from, any microscope This is effected very simply To the right on the under side of the machine is a strong curved leaf spring, attached at its proximal end to a firm crossbar, on the left at a convenient distance are pivoted



two spring fingers The machine is slipped over the anterior edge of the stage, the curved spring firmly presses the right edge of the stage, while the two spring fingers grip its left edge and under surface This construction is sufficient to hold the machine immovably upon the stage, and is adapted to engage stages of different widths within the limits of stage sizes usually employed with microscopes

The Medical Supply Association, 167 185, Gray's Inn road, W C, are the manufacturers

Manor Park K HEANLEY, L S A

A MONTHLY RECORD OF ATMOSPHERIC POLLUTION

THE returns in some instances have not been forthcoming, a number of stations having discontinued making observations owing to the reduction of staff It is hoped that the omissions due to this cause will be made good when normal times return The personnel of public health authorities concerned in the supervision of these examinations and of the analytical work involved remains the same as published in previous tables

COMMITTEE FOR THE INVESTIGATION OF ATMOSPHERIC POLLUTION

Summary of Reports for the Months ending February and March, 1916

Place	Rainfall in millimetres	Metric tons of deposit per square kilometre during month								
		Insoluble matter			Soluble matter		Total solids.	Included in soluble matter		
		Tar	Carbonaceous other than tar	Ash	Loss on Ignition	Ash		Sulphate as (SO_3)	Chlorine (Cl)	Ammonia (NH_3)
Month ending Feb 29th, 1916										
ENGLAND—										
Bolton	121	0·03	1 50	3·96	3 40	6 30	15 19	2·91	2·23	0·10
Exeter	137	0·03	2 25	2 61	1 64	5 09	11 61	1·56	0 88	0·04
Kingston upon Hull	75	0 11	2·24	3 23	3 23	5·03	13 89	2·37	1·09	0·07
Leicester	114	0·40	7·00	7·72	3·92	6 39	25 43	2 26	0·61	0·21
London—										
Meteorological Office	69	0 15	3 64	5 33	3 33	2 21	14 66	1 88	1 34	0·0[illegible]
Embankment Gardens*	—	—	—	—	—	—	—	—	—	—
Finsbury Park	68	0 13	1 35	4·24	2·02	3 47	11·21	1 81	0 57	0·06
Ravenscourt Park	75	0 17	3 27	7·62	1 38	3 63	16·07	1·91	0 18	0 11
Southwark Park	73	0 35	4 83	11·28	3 48	5 32	25·26	2 34	1 05	0·03
Wandsworth Common	75	0·23	2 41	6·97	0·59	4·61	14 81	2 26	0·90	0·06
Victoria Park ..	73	0·06	0·95	4 59	2 18	5 48	13·25	2·19	0·92	0·07
Golden Lane	79	0·09	3 50	4 87	2 52	5 36	16 34	2 71	1·04	0·25
Malvern ..	85	—	0·03	0 20	0 52	0 82	1·62	0·41	0 25	—
Manchester—										
Queen's Park	74	—	—	—	—	—	19·97	—	—	—
School of Technology	99	—	—	—	—	—	31 15	—	—	—
Newcastle-on Tyne ..	63	0 35	4 25	6 52	2·97	5 53	19 62	2 33	0·95	0·13
Rochdale	—	—	—	—	—	—	45 10	—	—	—
York.	42	0 11	1 24	2·26	2·24	3 24	9 09	1 54	0 83	0·07
SCOTLAND—										
Coatbridge	71	0·07	1·85	3 54	1·93	5 09	12 53	1 81	1·07	0·09
Greenock	146	0 19	1·95	2 89	3 36	6 72	15 12	2 37	2 55	0·18
Leith*	—	—	—	—	—	—	—	—	—	—
Month ending March 31st, 1916										
ENGLAND—										
Exeter	106	0·02	1 43	2 30	1·61	2 83	8·29	1 44	0·[illegible]	0 03
Leicester	121	0 30	6 8[illegible]	7·99	3 41	6·95	25 53	3 25	0 82	0·[illegible]
London—										
Meteorological Office ..	96	0·13	4 36	8·[illegible]	3 84	7 63	24·95	2·63	0 13	0 04
Embankment Gardens* ..	—	—	—	—	—	—	—	—	—	—
Finsbury Park	78	0 15	2·18	2 31	2 34	3 54	10 52	1·93	0·91	0 0[illegible]
Ravenscourt Park	101	0 16	3 53	5 5[illegible]	3·84	10 66	2[illegible]·68	5 23	1·2[illegible]	0 14
Southwark Park	83	0 14	5·29	9·06	6 56	13·54	34 57	6 0[illegible]	0·55	0·18
Wandsworth Common	39	0·02	0·47	1 48	1·20	2·52	5 70	0·93	0·6[illegible]	0·1[illegible]
Victoria Park	64	0·06	1 63	7·04	3·94	7 12	19 24	4 32	0·[illegible]4	0·09
Golden Lane ..	104	0 07	3 23	5 3[illegible]	4 15	6·[illegible]5	20·0[illegible]	3 7[illegible]	1 22	0 3[illegible]
Malvern ..	44	0·01	0·12	0 23	0 72	0·95	2·03	0 53	0 1[illegible]	0 0[illegible]
Manchester—										
Queen's Park	49	—	—	—	—	—	22 59	—	—	—
School of Technology	44	—	—	—	—	—	15 15	—	—	—
Newcastle-on Tyne	86	0 37	3 93	7·2[illegible]	2 [illegible]	5·65	19·[illegible]	2·[illegible]1	1 [illegible]2	0 1[illegible]
Rochdale	—	—	—	—	—	—	25 10	—	—	—
York	68	0·19	1·65	2·93	3·24	2 [illegible]3	10·[illegible]3	1 73	0 [illegible]1	0 [illegible]
SCOTLAND—										
Coatbridge	[illegible]1	0·03	0·97	1·97	1·91	3 [illegible]3	8·[illegible]	2 [illegible]0	0 [illegible]2	0
Greenock ...	[illegible]3	0·2[illegible]	2·[illegible]	5 2[illegible]	1 [illegible]	[illegible]	13 [illegible]	2·02	0 [illegible]3	0 1[illegible]
Leith	[illegible]7	0·05	0·02	2·74	2 [illegible]2	4 [illegible]0	11 24	2 35	1 1[illegible]	0 [illegible]

Samples lost

Tar" includes all matter insoluble in water but soluble in CS_2 Carbonaceous" includes all combustible matter insoluble in water and in CS_2 Insoluble ash" includes all earthy matter fuel ash &c One metric ton per sq kilometre is equivalent to (a) Approx 9 [illegible] per acre (b) 2·56 English tons per sq mile (c) one gramme per sq metre (d) 1/1000 millimetre of rainfall

SALVARSAN AND NEOSALVARSAN

AN EFFECTIVE SUBSTITUTE

GALYL

ROYAL COMMISSION ON VENEREAL DISEASES.

Final Report of the Commissioners

Substitutes for Salvarsan.

" another French substitute, **GALYL,** a compound of arsenic and phosphorus, "has recently come into prominence, and its use has been attended with "considerable success"

* * * * * * *

"Favourable reports have also been obtained regarding the preparation **GALYL.** "At the Male Lock Hospital 1000 injections of this substance have been administered, "and it is reported that they have been attended with **as good results as in "the cases treated by Salvarsan and Neosalvarsan;** in no "instance were the injections followed by reactions indicative of arsenic poisoning"

FORMS.

FOR DILUTE INTRAVENOUS INJECTION.

In ampoules containing GALYL and the necessary dose of sodium carbonate, sterile distilled water only being required to prepare the injection

FOR CONCENTRATED INTRAVENOUS INJECTION.

In Outfits containing one flask with GALYL, one ampoule sterile carbonated serum, one filter

Doses 0·10 0·15 0·20 0·25 0·30 0·35 0·40

FOR INTRAMUSCULAR INJECTIONS.

In ampoules containing an oily emulsion of GALYL

Doses 0·20 0·30 0·40

Complete Literature Clinical Reports, on application to—

THE ANGLO-FRENCH DRUG CO., Ltd (late M. BRESILLON & Co.),

Gamage Building, Holborn, LONDON, E.C.

Telegrams "AMISALTAS LONDON" 'Phone HOLBORN

"SANITAS"

DISINFECTANTS

"SANITAS FLUID."—Contains Peroxide of Hydrogen and Thymol as two of its active constituents — and has well defined germicidal properties It is fragrant, non-poisonous, and does not stain linen

Antiseptic wash for wounds and sores

Antiseptic gargle for sore throat

Antiseptic wash for perspiring feet

Antiseptic wash for mouth and teeth

Restores oxygen to vitiated air

All dwelling, school, and sick rooms and W C 's should be kept sprayed with "SANITAS FLUID"

8d. and **1s. 3d.** bottles with sprinkler corks, and **6s.** per gallon

"SANITAS BACTOX" (guaranteed co efficient 18 to 20)—The strongest homogeneous Phenoloid Disinfectant, kills—

B Typhosus in	7½ min	@ 15° to 18° C	diluted	1 in 2000
,,	,	@ 37° C	,	1 in 6000
,	,, 1½ hours	@ 15° to 18° C	,	1 in 5200
B Coli	,, 7½ min	@ 15° to 18° C	,,	1 in 1400
Staph Pyog Aur	in 7½ min	@ 15° to 18° C	,	1 in 900
B Diphtheria	,,	@ 15° to 18° C	,,	1 in 6000

1s. bottles and **5s.** per gallon

"SANITAS-OKOL" (a Phenoloid Disinfectant Emulsion) has also a guaranteed co efficient of 18 to 20 Bacteriological Reports will be sent on application **1s.** bottles and **5s** per gallon

"SANITAS" SULPHUR FUMIGATING CANDLES (Kingzett's Patents).—Light very easily and burn out thoroughly They are by far the best on the market, and are specially recommended for fumigating rooms after infectious illness, Hospital Wards, &c **6d.** and **1s.** each

"SANITAS FORMIGATORS."—Improved appliances for disinfection (wet and dry) by fumigation with Formaldehyde **1s 3d., 2s. 6d.,** and **10s. 6d.** each

"SANITAS FORMIC SULPHUGATORS" (Patent).—For disinfecting rooms, &c , with mixed Formaldehyde and Sulphurous anhydride gases **1s.** and **1s. 6d.** each

"SANITAS FURNITURE & FLOOR POLISHES" (Disinfectant) are made in several distinct qualities, and can be had in tins of various sizes and by the cwt at prices which will be quoted upon application

PEROXIDE OF HYDROGEN (Kingzett's Patent Preserved).—Can be had of 10, 12, 15, and 20 volumes strength For washing wounds and ulcers, treatment of gangrene, fœtid suppuration, and bad ozænic discharges also for the local treatment of diphtheria and cases of purulent discharge from the conjunctiva, &c The 10 volumes strength is put up in **1s 6d** pint stoppered bottles and in bulk at **4s.** per gallon

The "SANITAS" CO., Ltd.,

LOCKSLEY STREET, LIMEHOUSE, LONDON, E.

Disinfectant Manufacturers, by Appointment, to H M THE KING

THE LANCET.

LONDON SATURDAY, JULY 15 1916

The Food of the Prisoners at Ruhleben Camp

FURTHER correspondence between Sir EDWARD GREY and the American Ambassador respecting the conditions of diet and nutrition in the internment camp at Ruhleben has been published, and contains two reports by Dr A E TAYLOR to the American Embassy at Berlin In the first of these, dated May 24th, Dr TAYLOR states that since his last report a sharp reduction has been made in the amount of foodstuff allotted to the camp, the civilian prisoners at Ruhleben only receiving half the allowance of potatoes and little more than a third of the protein foods allotted to military prisoners of war in other camps In the second report, dated June 14th, a more detailed analysis of the diet is given The ration established for military prisoners of war in Germany in the month of June contained 2700 calories a day, made up of 80 grammes of protein, 29 of fat and 500 of carbohydrate This, though not plentiful, is an adequate diet as regards its calorie value for average men not doing much muscular work It contains about a hundred calories more than the peace ration of the German soldier The proportion of protein is low, but is just enough to maintain nitrogenous equilibrium with a sedentary life The proportion of fat is very low, indeed, no fat is given except that which is inseparable from the articles of food supplied For growing children such a low fat ration would be harmful, but it need not endanger nutrition in adults provided the requisite food value is made up by other foodstuffs, in this case carbohydrate The diet for military prisoners of war, therefore, though poverty stricken as regards its protein and fat, is theoretically enough to maintain nutrition if it is supplied in a form that can be digested and assimilated, a matter upon which we have ground for doubt

The diet supplied to the civilian prisoners at Ruhleben admits of no such defence It contained originally only 1580 calories a head, more than a thousand calories less than that for military prisoners This is wholly insufficient Its heat value 23 calories per kilogramme for a man of 11 stone, is barely enough to keep him nourished, even if it were in a most assimilable form, such as milk and eggs and he were resting entirely in bed With the conditions of camp life and German camp food it would be starvation As, however, many prisoners ate little or none of the camp ration having food supplies of their own, more was left for the others, so that the actual calorie value received by each man living on the camp food was brought up to a sufficient figure—namely, 2725 calories, containing 98 grammes of protein But with the further recent reductions this compensation fails, for in the week May 4th–11th only 1220 calories a day were supplied, with 39 grammes of protein and 6 of fat Such a diet, both as regards its heat value and its constituent foodstuffs, is wholly inadequate If doubled it would be barely sufficient Even when the food not eaten by more fortunate prisoners is added, it appears that a civilian in Ruhleben living on the camp food—and there were 2070 such—could only get 1930 calories a day, with 55 grammes of protein and 10 of fat This might prevent starvation if it were in a suitable form, but it is not Fat, sugar, and vegetables are not supplied Further deductions must, therefore, be made for food which is unpalatable or not digestible It is, indeed, too clear that a large number of the interned civilians are not getting enough to eat

In the following table the Ruhleben diets are compared with ordinary standards of living —

	Calories	Protein	Fat	Carbohydrate
English labourer	3655	184	71	570
German farm labourer (Ranke)	4696	143	108	788
Standard diet for a man of moderate activity	2820	100	100	360
Military prisoners of war in Germany	2700	80	29	500
Ruhleben diet before reduction	1580	59	12	308
Diet actually taken when increased by food left by other prisoners receiving supplies	2725	98	24	523
Ruhleben diet since reduction	*1220*	*39*	*6*	*255*
Reduced diet when increased by food left by others	*1930*	*55*	*10*	*410*

If anyone has lulled himself with the reflection that the most urgent needs of the interned were met by parcels from home he will learn from Dr TAYLOR S report that many of the agencies sending food into Ruhleben, of which 23 are scheduled, are unsatisfactory Some of them are doing very little, some are irregular, and others are not properly organised More care is needed in the selection and packing of food Parcels are sometimes as long as five weeks on the way, during which time much of the food has gone bad, especially the bread The quality of the bread ordered from Switzerland has also deteriorated Bread will keep if properly made and packed, for it is reported that loaves from the Army and Navy Stores and from John Barker and Co arrive in good condition It is to be hoped that in future all agencies sending food will work with the Prisoners of War Help Committee which has been set up by our Government to coördinate their efforts Pending the result of protests and negotiations through the American Embassy, Sir EDWARD GREY is endeavouring to arrange for a supply of food to be sent to the captain of the camp, pointing out at the same time that His Majesty s Government in no way admit their liability to feed prisoners in Germany, which is the recognised duty of the captor Government

The Factory Department in Time of War

THE annual report of the Chief Inspector of Factories and Workshops for the year 1915, issued last week, is of special interest since it deals with the circumstances which have arisen in connexion with the war The document bears eloquent tribute to the wonderful spirit which the industrial population of the nation has shown in our hour of need In spite of the bitter strain thrown upon the workers there is no evidence of any marked increase in the sickness rates, and the inspectors are able to show that there has been an almost entire absence of complaints that operatives are being taxed beyond their strength There can be little doubt, as Sir ARTHUR WHITELEGGE observes, that the high wages, and the better food which workers have been able to enjoy in consequence have done much to counteract the stress of long hours and to bring about this result Cases of fatigue, as might well be expected, have occurred, but by adopting a policy of temporary relief in such cases there is usually full recovery of energy again They occur commonly where overtime has been continued for long and uninterrupted periods In certain cotton mills, however, periodical medical examination of the workers has been made a condition of a continuance of overtime, and power is given to the examining surgeon, by consent, to suspend, either wholly or for a period, anyone showing signs of fatigue This has proved to be a satisfactory safeguard, and workers thus suspended are reported to recuperate rapidly so as to be quite fit to resume their task again

It will be understood that in order to deal with this vast call upon the resources, energies, and materials of the country an extension of the powers exercised in the Factory Acts had in many instances to be made The work in war time is controlled by a General Order from the Home Office, providing rules in regard to overtime and work involving day and night shifts This Order appears to have satisfied the needs in most cases, but for others special Orders have been required, and more particularly for the large munition firms, in some of which the hours have remained in advance of those permitted by the General Order Sunday labour, it is reported, has been found to be more and more unsatisfactory, and there appear to be economic as well as health reasons for excluding this from the category of a work day, employers having accepted the recommendations of the Health of Munition Workers Committee to this effect The plan advised was to arrange the work so that there should not be more than 12 shifts per fortnight or 24 where double shifts are worked and where three 8 hour shifts are worked not less than two should be omitted on Sunday It is preferable to work a moderate amount of overtime during the week allowing a break on Sunday, rather than work continuously from day to day, and it is still more strongly the view of the Chief Inspector that where overtime is worked in the week Sunday labour is not desirable

One of the most striking facts disclosed in this report is the remarkable adaptability that women have shown in taking up the duties which hitherto have been assigned to men Sir ARTHUR WHITELEGGE sets out no less than 28 branches of industry in which men have been completely replaced by women, who are now to be found in the distillery, the chemical factory, jute mills, saw mills, printing works, wood working factories, flour mills, soap works, foundries, and so forth Shortage of labour, in fact, has for the most part been compensated for by the introduction of women, and there still appears to be an ample supply The majority attracted by the high rate of wages and by the feeling that they are thus taking an active share in the war have found places in the munition works

The question of the employment of women is further developed by Miss ANDERSON, the principal lady inspector of factories, in a special report dealing with the effect of the second year of war on the industrial employment of women and girls She finds the 12 hour night shift for any length of time to be unthinkable for women except in extreme war emergencies, and then only if compensation in the shape of good food and general comforts is forthcoming A very long night shift she would watch with suspicion, and would limit it to short periods for urgent necessities But the same story is told, in Miss ANDERSON'S report, of the women's splendid spirit in working Attention is very properly called to the pernicious effect of long hours on adolescent hands, who quickly develop symptoms of exhaustion and impaired vitality, but the facts have to be found out for them, as for the most part their idea is to keep on working One of the girl hands said to the inspector, "It is the good cause that gives the good heart for work," and so some of the weaker in flesh, because of their willing spirit, exceed their physical capacity in bearing their share in the war s burdens We can well understand how arduous has become the task of the Home Department in watching over the health interests of the great band of workers which has so suddenly been placed under the sheltering care of the provisions of the Factory Acts, and the administration may be congratulated on the admirable way it has adapted its machinery to deal with a situation so different from normal times, and which has presented so many new problems of extraordinary magnitude and difficulty

---

SEXUAL ENLIGHTENMENT IN SECONDARY SCHOOLS —At a meeting of headmistresses held at the Royal Society of Medicine on July 7th called to consider the recommendations of the Royal Commission on Venereal Diseases in reference to the education of young people in sexual physiology and hygiene Mrs Scharlieb M D pointed out that the question of combating venereal diseases was pre-eminently a women s question and dwelt on the le which the mistresses of secondary schools might play in he enlightenment of their pupils A general request for further instruction was expressed and it was arranged for lectures to be given at the Royal Society of Medicine on Sept 6th 7th and 8th at 8 15 p m to which all women teachers are invited

Annotations.

"Ne quid nimis"

THE PUBLIC HEALTH CONDITION OF THE COUNTRY

WE publish in our Parliamentary report the statement made on Tuesday night in the House of Commons by Mr Long, the President of the Local Government Board, reviewing the work of his department, and it is with no small satisfaction that we record the broad message of that statement —namely, that the general condition of the country has never been more satisfactory It is not only that pauperism has nearly vanished and that unemployment does not exist, but there has been a steady decrease in enteric fever and a high average standard of health, although enormous numbers of men have been suddenly collected in areas where, in the first instance at any rate, accommodation was necessarily of a makeshift nature Mr Long said that, in spite of the shortage of medical men as a consequence of the war, the work of his department in the prevention and treatment of tuberculosis had not been allowed to fall into arrear, while child welfare schemes had been encouraged, and a grant had been made for the payment of health visitors in connexion with designs for safeguarding the health of expectant and nursing mothers and of infants Lastly, Mr Long said that the Local Government Board had been able to adopt in large measure the recommendations contained in the report of the Royal Commission on Venereal Diseases, he spoke with confidence of the prospects of the coöperation between the Government, local and hospital authorities, medical men, ministers of religion, and the people generally, in the work of eradicating the evil

STOCK MIXTURES UNDER THE INSURANCE ACTS

BEING authorised to do so under the new scale of dispensing fees set out in the 1916 Drug Tariff, the London Panel Committee has selected four stock mixtures from the 'Central List,' and any of these may be ordered for their insured patients by practitioners on the London panel one calendar month after the notice given by the Panel Committee of its selection These will be dispensed at a reduced dispensary fee of 2 3*d*, and to secure the reduction the letters C.L should be added after the name of the mixture The mixtures in question have been placed on the list after consideration of their capability of being stocked in bulk without deterioration, and the formulæ are commended to practitioners as a probable means of slightly reducing the cost of their drug bills and of facilitating their clerical work The question of economy in prescribing, of which the free use of stock mixtures forms only a part is one of the principal difficulties which beset practitioners under the Insurance Acts Many doctors have been surcharged for extravagance in the medicines ordered by them for their panel patients, and some of these were, no doubt, not so careful as they should have been in what is in effect authorising the expenditure of public money On the other hand it can hardly have been the intention of those who were responsible for the scheme of National Insurance now in force that a medical man keeping his mental eye upon a prospective bill for medicines, should prescribe for an insured patient as he would not do for one, not much better off financially, attended by him in his private practice This, however, is what he must do, at least sometimes, if he would keep the average of his prescriptions low enough to avoid a surcharge A medical man who has recently discussed this issue with the Secretary of the London Panel Committee has sent us a copy of his reply to an accusation of extravagance In this it is pointed out with justice that a higher average cost of prescriptions may be a direct result of the greater individual care given to patients by a conscientious panel practitioner, and will in such a case be far more than compensated by a corresponding saving to the Sickness Benefit funds It is not a question of considerately saving the pocket of a poor patient in a way which would not be necessary if he belonged to the affluent classes, but of bearing in mind the calls which the illnesses of other patients are making on the drug fund, and of sparing drugs accordingly It is not right that such parsimony should be necessary It is a parsimony not seriously affected by an infinitesimal saving in a dispensing fee here and there, but one which may affect the health of a patient, and militate against his speedy recovery Incidentally we note a suggestion for economy in prescribing in an article contributed to the *Scotsman*, which recommends that elements introduced into a prescription purely as carminatives or for the purpose of flavouring and rendering the medicine less unpleasant should be omitted The writer expresses the opinion that the abolition of such ingredients would probably effect a saving amounting to almost 10 per cent of the expenditure on drugs As to how far this estimate may be correct we express no opinion, but the economy would in most instances be a legitimate one, and, further, might tend to prevent some persons from seeking medicine who would not greatly lose thereby The saving effected would, however, only serve to lessen the strain upon the drug fund It would have no effect in enabling the insured patient to be treated upon the same footing as his wealthier neighbour In fact, it would rather tend to accentuate the difference between them

THE LIFE-CYCLE OF THE SCHISTOSOME WORMS

DURING the past three years a considerable amount of time and work has been devoted to the life history of the schistosome worms parasitic in man The first workers to obtain definite results were two Japanese observers, Miyairi and Suzuki, who, in a series of observations and experiments, not only succeeded in tracing the whole of the life history of *Schistosomum japonicum* (the causative agent in Asiatic schistosomiasis) in the intermediate host, *Katayama nosophora* (a small mollusc with seven to nine spirals, very common in parts of Japan) but also in demonstrating its mode of entry into the definitive host. The observations recorded by these workers were confirmed by Leiper and Atkinson in 1914 In the early part of 1915 the War Office Bilharzia Mission (of which Dr R T Leiper, of the London School of Tropical Medicine, was in charge) proceeded to Egypt, and there succeeded in working out the life histories of those schistosome worms which produce vesical and rectal bilharziasis respectively Three parts of the report of the

Bilharzia Mission have already been published in the July, August, and September (1915) issues of the *Royal Army Medical Corps Journal*, and the results obtained are briefly stated in the following account When infected material containing the eggs of the bilharzia worms is passed into water the miracidia contained within them soon make their escape In the water they swim about rapidly, by means of the cilia with which their cuticle is furnished, and eventually are attracted to one or other of the molluscs which is to function as their intermediate host for the ensuing period of their development The cuticle of the mollusc is pierced with the aid of the small proboscis which protrudes from the anterior extremity of the miracidium, and having gained an entry the invader finds its way to the liver of its host In the liver a series of changes take place in the form of the miracidium, and ultimately a complete metamorphosis results in the formation of the sporocyst This latter is totally unlike the miracidium from which it arose, and is best described as a long, hollow, thin walled tube, which is unprovided with gut, glands, or suckers The sporocyst is, however, capable, by a process of internal budding, of producing other sporocysts within itself These latter, by simple rupture of the containing maternal wall, become free within the liver substance of their host, and it is in them that the next stage of the life cycle is evolved In this second generation of sporocysts—the "daughter sporocysts"—internal budding again takes place The development of these buds results in the formation of the cercariæ—the final stage of evolution in the molluscan host The cercariæ are described as being possessed of a body and a tail, the latter being bifurcated at its extremity The body is provided with two suckers, an oral and a ventral, and a bifurcated gut No pharynx or eye spots are present Between the bifurcations of the gut are several large glandular cells which communicate with the oral sucker by means of filiform ducts The cercariæ leave the sporocyst by rupture of the over distended maternal wall, and, after a shorter or longer period, are expelled from the body of the mollusc into the water, there to act as the infecting agents The subsequent course of the life cycle was worked out by means of the experimental infection of rats, mice, guinea pigs, and monkeys, and it was demonstrated that two modes of infection are possible—viz, the cutaneous and the oral It would appear, from the account given in the report, that the oral route is only different from the cutaneous in that whilst in the latter case the cercariæ perforate the skin, in the former they perforate the buccal mucosa In the case of a newly born mouse which had been immersed for half an hour in water which contained numerous cercariæ, it was found when sections of the skin were examined that many of the cercariæ had already perforated deeply into the skin, whilst in the water numerous detached tails were left Three of four monkeys were subjected to infection with the bilharzia cercariæ by pouring into the bottom of the cages in which they were confined water which had previously been infected The fourth monkey was given infected water to drink All four monkeys eventually died, and were found upon examination to be heavily infected The monkey infected with drinking water showed earlier and more intense symptoms than the others Leiper has been able to differentiate between the adult worms, which produce the terminal spined and lateral spined ova on morphological grounds He states that the molluscan intermediate hosts are also specific—in the case of *S hæmatobium* being two species of *Bullinus* (*B contortus* and *B dybowski*), and in the case of *S mansoni Planorbis boissyi* Dr F G Cawston reports in a letter appearing elsewhere in this issue that he has been successful in determining the intermediate host for the worm producing vesical bilharziasis in Natal

THE SALE OF MEDICATED WINES

WE have received from the Central Control Board (Liquor Traffic) a copy of the General Order relating to the sale of medicated wines which comes into force on and after August 7th, 1916, in all areas to which the Defence of the Realm (Liquor Control) Regulations (1915) are applied The Order provides that—

> No person shall either by himself or by any servant or agent sell or supply to any person in any licensed premises for consumption off the premises or despatch therefrom any intoxicating liquor in the form of or prepared as (*a*) medicated wine or (*b*) any mixture or preparation which contains any drug or medicament or is sold or advertised for sale as containing or purporting to contain medicinal properties, except in a bottle or other vessel bearing a label correctly stating in clear and legible words or figures the amount of proof spirit contained in such medicated wine or mixture or preparation

This Order is not intended to affect the sale of (1) any medicine, mixture, or preparation appearing in the British Pharmacopœia or the British Pharmaceutical Codex, or (2) any medicine, mixture, or preparation which is made up for a customer on the signed prescription of a medical practitioner, or (3) medicated or methylated spirits, or spirits made up in medicine and sold by medical practitioners or chemists or druggists The chief object of this Order is, of course, to inform or perhaps warn the consumer that these wines in so many cases are potent alcoholic liquors We should have thought that the disclosure of alcoholic strength in terms of actual alcohol would to most people have been more intelligible than in terms of proof spirit It is not widely known that proof spirit means alcohol diluted practically a half with water, so that the figures for proof spirit would be double those for alcohol and the statement might well convey an exaggerated idea of alcoholic strength

VENEREAL DISEASE IN SWEDEN

IN a paper by Dr Sederholm on venereal disease, on which we have already commented in THE LANCET of June 17th, an interesting account is given of the distribution of venereal disease in town and country in Sweden It is a matter of common knowledge that the venereal diseases are mainly the products of large towns and industrial centres with a dense population But hitherto there have not been many investigations showing how great the difference is between the incidence of venereal disease in town and country When a modified form of compulsory notification of venereal disease was introduced in Sweden on Dec 30th, 1911, this difference soon became evident This system of notification did not supply the names of the persons concerned but it did give the name of the place in which infection was supposed to have occurred The figures for 1914 show that in Stockholm the incidence of new cases of venereal disease was 2 17 per cent of the total population The incidence of the disease for the three towns Stockholm Gothenburg, and Malmö was 1 49 per cent For the smaller towns it was 0·26 per cent, and for the country districts it was

as low as 0 02 per cent In the three large towns there were 1629 new cases of syphilis, 8168 new cases of gonorrhœa, and 1126 new cases of ulcus molle While the total population of the three towns was only 665,638, the total population of the country districts was 4,156,717 Yet in the country districts there were only 121 new cases of syphilis, 666 new cases of gonorrhœa, and only 26 new cases of ulcus molle. It appears from these figures that the danger of infection from venereal disease is 75 times greater in the large towns than it is in the country districts and that far more active measures are required to combat the disease in the crowded communities than elsewhere That the relative preponderance of venereal disease in the large towns coincides broadly with the incidence of prostitution is the inevitable conclusion from these facts and figures, and if the problems of venereal disease are those of prostitution it is only by reforms in the conduct of prostitution that an appreciable reduction of venereal disease can be anticipated This, the moral of Dr Sederholm's communication, is a point of view not shared by all the other members of the Board of Health to which Dr Sederholm belongs This body, apparently, is in favour of the abandonment of regulation of prostitution in any form, and relies mainly on educational methods and free treatment for every patient

THE AUDIBILITY OF GUN-FIRING

SEVERAL correspondents have written recently calling attention to the unusual audibility of the gun firing in Flanders, so that a paper read at the last monthly meeting of the Royal Meteorological Society by Mr Miller Christy and Mr W Marriott has a topical interest The audibility of the gun-firing in Flanders over the south east of England has been repeatedly noticed since an early period of the war, but Mr Christy says that undoubtedly the intensity of the sound varies considerably with the quality of the guns and the meteorological conditions Sometimes slow and deliberate firing is heard at the rate of 3 to 12 shots a minute, each shot being quite loud and distinct This is probably the firing of the monitors and other warships bombarding the German positions on the Belgian coast Usually, however, the firing has been much more rapid, much less distinct, and apparently more distant This is, no doubt, the sound of the fighting further inland—say, around Ypres, Dixmude, or Arras, it varies in rapidity from perhaps 4 or 5 shots to the minute up to more than 100 This sound is, as a rule, very faint, though easily perceptible and quite unmistakable, it resembles more nearly a dull and distinct thud, which is rather felt than heard From the records collected it appears that the gun firing has been heard at one time or another over the counties of Essex, London, Kent Surrey and Sussex, the most distant place being about 150 miles from Ypres Mr Marriott, in discussing the meteorological conditions under which the gun firing was heard, said that the weather charts showed that generally there is a somewhat irregular, or not definitely defined, distribution of barometric pressure but mostly with a region of high pressure wedged in between areas of slightly lower pressure These conditions are such as to produce light winds at the surface mostly between north and east over the neighbourhood of the North Sea. Aspect and elevation are also important factors for the hearing of the firing so that there is nothing mysterious about the audibility altering so greatly as it obviously does The weapon and its position, the weather and its modifications, all combine to make the audibility vary from day to day

INDUSTRIAL ANILIN POISONING

THE paramount position of the anilin industry in Germany has naturally caused the experience of anilin poisoning to be mainly German The production of anilin dyes in England consequent on the war is likely to familiarise us with anilin poisoning The United States made no attempt to compete with Germany in the manufacture of anilin or anilin dyes until the supply was shut off by the war, but in the *Journal of the American Medical Association* Dr R V Luce and Dr Alice Hamilton now publish an important paper on Industrial Anilin Poisoning, based on experiences in the tyre factories of Akron, Ohio Apart from the production of anilin colours, anilin is used in America in the compounding of rubber, especially for tyres, and in reclaiming rubber from scrap When the war suddenly shut off the supply from Germany rubber manufacturers began to manufacture anilin, so that now to the men exposed to anilism in rubber manufacture must be added those engaged in producing the anilin Industrial anilin poisoning, which a few years ago was negligible, suddenly assumed importance So far the making of dyes is too new in the United States to furnish cases, those reported come from the rubber industry and from the use of a wash for printers' ink which contains anilin The victims are known as "blue boys,' from the cyanosis which is so prominent a symptom Since the discovery of the cause of the trouble the rubber manufacturers have taken measures of protection, either by installing exhaust ventilators or simply by warning the men to seek the open air as soon as flushing of the face and violent headache come on Pure anilin has never been known to cause poisoning, but pure anilin is not used in industry What is known under this name is a mixture of anilin (amidobenzene) with metatoluidin, paratoluidin, orthotoluidin, and xylidin in varying proportions Unlike most volatile poisons anilin gives no warning, for it does not irritate the eyes and throat Yet according to the researches of Lehmann, anilin is toxic in even smaller doses than benzene chloroform, or carbon disulphide Most of the industrial cases follow spilling or splashing of anilin over clothes or skin, and doubtless both skin absorption and lung absorption play their part Rambousek places anilin and all the nitro and amido derivatives of the aromatic series among the blood poisons the principal action of which is to cause the formation of methæmoglobin, in which the oxygen is firmly bound, thus producing a condition of "internal suffocation' In England Dr W Malden has examined the blood of men employed in the manufacture of anilin dyes and nitrobenzene In about half he found a high red count with a low colour index and many imperfectly developed red corpuscles The spectrum of methæmoglobin could be detected only when it was present in the proportion of 1 part to 10 of oxyhæmoglobin Loss of hæmoglobin ran from 5 to 50 per cent Stained specimens showed great variations in the size of the red corpuscles Basophilic granules were found Dr Malden believes that this is often the earliest sign of anilin poisoning, as it is of lead poisoning The first

Bilharzia Mission have already been published in the July, August, and September (1915) issues of the *Royal Army Medical Corps Journal*, and the results obtained are briefly stated in the following account When infected material containing the eggs of the bilharzia worms is passed into water the miracidia contained within them soon make their escape In the water they swim about rapidly, by means of the cilia with which their cuticle is furnished, and eventually are attracted to one or other of the molluscs which is to function as their intermediate host for the ensuing period of their development The cuticle of the mollusc is pierced with the aid of the small proboscis which protrudes from the anterior extremity of the miracidium, and having gained an entry the invader finds its way to the liver of its host In the liver a series of changes take place in the form of the miracidium, and ultimately a complete metamorphosis results in the formation of the sporocyst This latter is totally unlike the miracidium from which it arose, and is best described as a long, hollow, thin walled tube, which is unprovided with gut, glands, or suckers The sporocyst is, however, capable, by a process of internal budding, of producing other sporocysts within itself These latter, by simple rupture of the containing maternal wall, become free within the liver substance of their host, and it is in them that the next stage of the life cycle is evolved In this second generation of sporocysts—the "daughter sporocysts"—internal budding again takes place The development of these buds results in the formation of the cercariæ—the final stage of evolution in the molluscan host The cercariæ are described as being possessed of a body and a tail, the latter being bifurcated at its extremity The body is provided with two suckers, an oral and a ventral, and a bifurcated gut No pharynx or eye spots are present Between the bifurcations of the gut are several large glandular cells which communicate with the oral sucker by means of filiform ducts The cercariæ leave the sporocyst by rupture of the over distended maternal wall, and, after a shorter or longer period, are expelled from the body of the mollusc into the water, there to act as the infecting agents The subsequent course of the life cycle was worked out by means of the experimental infection of rats, mice, guinea pigs, and monkeys, and it was demonstrated that two modes of infection are possible—viz, the cutaneous and the oral It would appear, from the account given in the report, that the oral route is only different from the cutaneous in that whilst in the latter case the cercariæ perforate the skin, in the former they perforate the buccal mucosa In the case of a newly born mouse which had been immersed for half an hour in water which contained numerous cercariæ, it was found when sections of the skin were examined that many of the cercariæ had already perforated deeply into the skin, whilst in the water numerous detached tails were left Three of four monkeys were subjected to infection with the bilharzia cercariæ by pouring into the bottom of the cages in which they were confined water which had previously been infected The fourth monkey was given infected water to drink All four monkeys eventually died, and were found upon examination to be heavily infected The monkey infected with drinking water showed earlier and more intense symptoms than the others Leiper has been able to differentiate between the adult worms, which produce the terminal spined and lateral spined ova, on morphological grounds He states that the molluscan intermediate hosts are also specific—in the case of *S hæmatobium* being two species of *Bullinus* (*B contortus* and *B dybowski*), and in the case of *S mansoni Planorbis boissyi* Dr F G Cawston reports in a letter appearing elsewhere in this issue that he has been successful in determining the intermediate host for the worm producing vesical bilharziasis in Natal

THE SALE OF MEDICATED WINES

WE have received from the Central Control Board (Liquor Traffic) a copy of the General Order relating to the sale of medicated wines which comes into force on and after August 7th, 1916, in all areas to which the Defence of the Realm (Liquor Control) Regulations (1915) are applied The Order provides that—

> No person shall either by himself or by any servant or agent sell or supply to any person in any licensed premises for consumption off the premises or despatch therefrom any intoxicating liquor in the form of or prepared as (*a*) medicated wine or (*b*) any mixture or preparation which contains any drug or medicament or is sold or advertised for sale as containing or purporting to contain medicinal properties, except in a bottle or other vessel bearing a label correctly stating in clear and legible words or figures the amount of proof spirit contained in such medicated wine or mixture or preparation

This Order is not intended to affect the sale of (1) any medicine, mixture, or preparation appearing in the British Pharmacopœia or the British Pharmaceutical Codex, or (2) any medicine, mixture, or preparation which is made up for a customer on the signed prescription of a medical practitioner, or (3) medicated or methylated spirits, or spirits made up in medicine and sold by medical practitioners or chemists or druggists The chief object of this Order is, of course, to inform or perhaps warn the consumer that these wines in so many cases are potent alcoholic liquors We should have thought that the disclosure of alcoholic strength in terms of actual alcohol would to most people have been more intelligible than in terms of proof spirit It is not widely known that proof spirit means alcohol diluted practically a half with water, so that the figures for proof spirit would be double those for alcohol and the statement might well convey an exaggerated idea of alcoholic strength

VENEREAL DISEASE IN SWEDEN

IN a paper by Dr Sederholm on venereal disease, on which we have already commented in THE LANCET of June 17th, an interesting account is given of the distribution of venereal disease in town and country in Sweden It is a matter of common knowledge that the venereal diseases are mainly the products of large towns and industrial centres with a dense population But hitherto there have not been many investigations showing how great the difference is between the incidence of venereal disease in town and country When a modified form of compulsory notification of venereal disease was introduced in Sweden on Dec 30th, 1911, this difference soon became evident This system of notification did not supply the names of the persons concerned, but it did give the name of the place in which infection was supposed to have occurred The figures for 1914 show that in Stockholm the incidence of new cases of venereal disease was 2 17 per cent of the total population The incidence of the disease for the three towns Stockholm, Gothenburg, and Malmö was 1 49 per cent For the smaller towns it was 0 26 per cent, and for the country districts it was

CANADA

(FROM OUR OWN CORRESPONDENT)

The Ontario Health Officers' Association

THE fifth annual conference of the medical officers of health of Ontario was held in Toronto this year, Dr A. J Macaulay, of Peterborough, discharging the presidential duties, and Dr John W S McCullough, chief health officer for Ontario, acting as secretary Many interesting communications were read bearing on the public health of the province

Dr M B Whyte superintendent of the Isolation Hospital, Toronto, read a paper on the Quarantine Period for Measles, a disease which has been widely prevalent in Ontario the past six months, and from the discussion which followed the consensus of opinion of 400 health officers was that 16 days' exclusion from school following exposure was needless It was agreed that those who suffer from the disease should be quarantined for seven days after the rash appears unless there are discharges or epistaxis, and that as second attacks are rare, those who have previously had the disease need not be quarantined at all.

Dr Fred Adams epidemiologist to the Toronto Board of Health, gave a résumé of his observations upon typhoid fever in Toronto in the last six years, showing a remarkable improvement in the condition In 1910 the death-rate from typhoid fever was 40 per 100 000, five years later, in 1915 it was only 1 9, the lowest rate of any of the large cities in America The chief factors in this reduction Dr Adams ascribed to chlorination of the water supply, pasteurisation of milk, certified milk, and a campaign against flies and outdoor privies

Dr J G Fitzgerald of the Ontario Department of Health, read a paper on the Epidemic of Cerebro-spinal Meningitis which occurred among troops quartered in Toronto, and reported that "all the cases among troops in the Toronto Military District have recovered"

Among other interesting communications may be mentioned that of Dr W H Park Director of the Public Health Laboratories, New York City who, speaking on the treatment of diphtheria advised the use of antitoxin in large doses adding that the intravenous use of antitoxin was more effective than either the intramuscular or subcutaneous In severe cases he gave, he said from 5000 to 15,000 units to a child, with correspondingly large doses in the adult. Laryngeal cases require early and large doses

Major W D Sharpe (Brampton), who served as surgeon in the British Naval Hospital at Belgrade in the first year of the war, gave an interesting lecture on Sanitation in Serbia, and Captain Ruggles George A.M C (Toronto) told the interesting story of the first Canadian Overseas Contingent, taking the contingent from Camp Valcartier in Quebec to the trenches in Flanders

Ontario Medical Association

The thirty sixth annual conference of the Ontario Medical Association was held in Toronto at the beginning of June Dr Harry B Anderson (Toronto) presiding Over 450 medical practitioners from all parts of the province attended Dr Anderson in his presidential address discussed the important question of medical education in the province He thought that there should be a strict uniform examination for the practice of medicine, and no granting of special privileges to those not fully trained and unequal to meet the requirements of the medical examination. He considered that from the standpoint of the medical profession the new Ontario Workmen's Compensation Act was most unsatisfactory in some particulars notably the absence of a clause providing for the prompt and proper payment of the medical man for his services Under this Act physicians in Ontario are practically compelled to attend injured workmen without pay In dealing with the general organisation work of the profession in the province the President stated that there were now some 35 local medical societies in the province ready to affiliate with the Ontario Medical Association He alluded also to the large number of Canadian practitioners engaged in the war Professor A D Blackader (Montreal) said that after the war Canadian physicians should favour the home made or British-made drugs as certain lines of drugs already made in Canada since the outbreak of the war had been entirely satisfactory At the conclusion of this paper the President stated that he had a communication from the Federal Government to the effect that it purposes revising the Patent Medicines Act and advising the association to make representations to the Government A committee was appointed to take care of this matter The therapeutics of pneumonia was discussed by Professor Solomon Solis Cohen, of Philadelphia, U S A., and Dr Elliott P Joslin, of Boston, read a paper on the treatment of diabetes, recommending the cutting down of carbonaceous foods and the exclusion of fats until the patient was got into a state of moderate fasting Dr John A. Wyeth, Dr John A Bodine, and Dr C H. Chetwood, of New York, explained the use of the moving picture in showing surgical technique The demonstrations included hip-joint operations and kidney removals, and formed one of the features of the meeting The following officers were elected —President Dr A. Dalton Smith, Mitchell, Vice-President Dr Clarence Starr Toronto, General Secretary Dr F Arnold Clarkson, Toronto

Toronto June 24th

NOTES FROM INDIA

(FROM OUR OWN CORRESPONDENTS)

Malaria Committees Abolished in the United Provinces

THE United Provinces Government has decided to abolish the provincial and divisional malaria committees which came into existence in the summer of 1910 A Government resolution explaining the reasons for this step says "Some useful work has been done by provincial committees, but experience has shown that their duties which have consisted in collecting information and suggesting remedies for disease, overlap with those of the Sanitary Board These duties will be transferred to the Sanitary Board, of which the Inspector-General of Civil Hospitals will now become a member The duties assigned to divisional malaria committees were of a similar nature to those of provincial committees The divisional committees have proved to be inadequately equipped for their duties" Malarial survey is a condition precedent to the initiation and elaboration of anti-malaria measures but it requires for its execution the service of experts and divisional committees have not and cannot well have at their disposal any expert agency The surveys that have been made at Saharanpur, Kosi, Nagina and Lucknow have been the work of officers of the Sanitary Department, and all future surveys will be similarly initiated and controlled In several divisions committees have already ceased to meet and in the remaining divisions the results achieved are not such as to justify their further retention

The Bombay Medical Union

At the annual meeting of the Bombay Medical Union Dr H S Shroff, the President, delivered an address of wide political scope Alluding to the enlistment of members of the "independent medical profession" by Government at the local war hospitals at base hospitals, and at several spheres of the war, he said that in the representation by the Bombay Medical Union to the Royal Public Services Commission it was stated that the cadre of the Indian Medical Service on the civil side could be reduced and could be replaced by civilian practitioners after competitive examination It was in this way proposed that a civil medical department, when created should form a reserve for the army in time of war, and since the outbreak of war 166 temporary commissions have been issued out of which 32 appointments of lieutenants in the Indian Medical Service were made in England and 134 in India

With reference to the Bill to prevent the grant to unqualified persons of titles implying qualifications in Western medical science and the assumption and use by such persons of such titles or designations implying such qualifications [1] he said that the measure had been brought before the Council by "that sympathetic and statesmanlike member of the Council the Director General of the Indian Medical Service, who has been the custodian of the interests of that service and other services and keen to safeguard their interests and who is also keen to advance the status and aspirations of the Indian medical profession"

The third subject to which the speaker referred as one to which the Union had been giving special attention was the

[1] THE LANCET May 13 h 1916 p. 1011.

symptoms are weariness or sleepiness, flushing of the face, a sense of fullness in the head and even of slight mental confusion, dryness of the throat, and dysphagia The colour of the face changes from red to livid blue, which may increase to a deep purple The pulse is rapid and weak, the temperature subnormal Headache comes on early and is often violent, accompanied by dizziness and nausea, and in the more serious cases there is decided dyspnœa, increasing mental confusion, and finally loss of consciousness These symptoms are due to want of oxygen Later symptoms — icterus, methæmoglobinuria, bladder irritation, and bronchitis—are caused by the elimination of the poison In some cases the subjective symptoms are slight and the man seeks advice because of his livid or blue colour, which is alarming to him and his friends Usually industrial cases do not exhibit the severest symptoms, but epileptoid convulsions and protracted coma have occurred and proved puzzling to the medical attendant Recovery in the milder cases is prompt, the men usually returning to work on the following day, though the cyanosis often persists for several days more Chronic anilism is described by von Jaksch as a condition resulting from repeated doses of the poison so small as not to set up symptoms of acute poisoning There are more or less headache, nausea, vertigo, muscular twitchings, disturbances of vision, sense of exhaustion, and loss of strength The skin is usually livid, or it may be jaundiced In one American case the man was treated for heart disease because of his cyanotic appearance and dyspnœa on exertion

MEDICAL WOMEN S FEDERATION

THERE has been for some years a Federation of University Women with the object of facilitating the expression of united opinion and the concerted action of University women on matters specially affecting them, and this federation has local associations in the cities of England, Wales, and Scotland, and is affiliated with similar associations in Ireland and India An association of registered medical women was established more than 35 years ago Other associations have since arisen, and it is now proposed to do for medical women what has already been done for University women in general by means of a federation of their existing associations An application for incorporation has accordingly been made to the Board of Trade The affairs of the federation are to be managed by an elected council, each association sending representatives in proportion to its numbers, and the first appointed representatives, of whom Miss A Helen Boyle, M D , is president, and Miss Jane Walker, M D , provisionally secretary and treasurer, have drawn up a scheme which is being circulated to all medical women At the central office a register of medical women will be kept indicating the type of work upon which they are engaged, the posts open to them, details regarding assistantships, and the sale and purchase of practices, and so forth There is to be a salaried secretary at this office ready to give members any information and help that they desire It is intended to take special steps to deal with public work in connexion with war emergency school inspection, health insurance, public health and factory inspection in order to secure the fullest possible coöperation between the federation and the various Government departments concerned. The promoters hope that every medical woman will join this federation and thus ensure its becoming a responsible professional body as well as a bond of communication between its members The subscription has been fixed at one guinea entrance and one guinea annually, and intending members are asked to communicate at once with the secretary of the federation at 122 Harley street, London, W The federation is the natural result of the steadily widening sphere of woman in medicine

TETRAGENUS SEPTICÆMIA

IN the *Annali di Medicina Navale e Coloniale*, issued from Rome by the Italian Admiralty, Dr Dante Ferraro, a senior medical officer in the Italian Navy, details two cases of generalised infection by micrococcus tetragenus which followed wounds of the feet and came under his notice in the naval hospital in Venice In each case the wound of the foot seemed to heal, but two or three weeks later an indolent bubo formed and was opened In each case there arose an endocarditis which ultimately led to the patient's invaliding out of the service One also suffered from a tolerably severe nephritis Dr Ferraro quotes the case reported by H Robinson in the *Journal of the Royal Army Medical Corps* for May, 1915, where an otorrhœa supposed due to typhoid infection was shown by blood culture to be caused by M tetragenus, and he notes that certain French authors who investigated by blood culture 738 cases of pyrexia in men who had undergone antityphoid inoculation, found in five the micrococcus tetragenus which had not been previously suspected It has been reported on ship board,[1] and Tremolieres and Loew, mentioning 25 cases of this septicæmia seen in French armies during the war, divide them into three classes (1) benign, temperature not above 102° F , (2) severe, to 104°, lasting 8–10 days , and (3) a pleuro pneumonia in which a few diplococci are found in blood culture along with a great majority of M tetragenus

AT the Royal Society of Medicine the Section of Surgery has arranged for a special meeting to be held on Friday next, July 21st, at 5 P M , at which a paper will be read by Major Tait McKenzie, R A M C , on "The Treatment of Convalescent Soldiers by Physical Means,' illustrated by lantern slides of cases under treatment Members of other sections are cordially invited, and the paper will have special interest for members of the Sections of Balneology, Electro therapeutics, and Neurology

THE death is announced of Dr Walter William Hunt Tate obstetric physician to St Thomas s Hospital We hope to publish a full obituary notice later

[1] Home THE LANCET June 12th 1915 p 1175

DONATIONS AND BEQUESTS —By will the late Mr Lestocq Robert Erskine left £200 each to the London Fever Hospital, the Royal Berks Hospital and the London Hospital —The late Mr B H Deakin town clerk of Monmouth bequeathed £500 to the Monmouth General Hospital and Dispensary for the maintenance of a cot in the children s ward in memory of his daughter

WATER SUPPLY OF BIDEFORD (DEVON) —The Bideford town council has adopted a scheme for augmenting the water supply of the town at an estimated cost of £13,5[illegible] A new reservoir is to be erected capable of holding 27,000,000 gallons to be supplied from a collecting area of 600 acres and this would be capable of yielding at least 3,0[illegible] gallons per annum

THE SERVICES

INDIAN MEDICAL SERVICE EXAMINATIONS

It was recently announced that after the open competitive examination held last July for admission to the Indian Medical Service no similar examination would be held during the continuance of the war, but that such appointments as might be required to meet the absolutely indispensable needs of the Service would be made by nomination by the Secretary of State To assist him in making these appointments which, as already announced, will be limited in number to the absolutely indispensable needs of the Service, Mr Chamberlain has appointed a Selection Committee who will summon and interview such applicants as may appear to be *primâ facie* suitable, and make recommendations for appointment Applications for appointment should be addressed to the Secretary of the Military Department, India Office, Whitehall S W, and should contain concise particulars of the applicant's medical degrees and career Applicants must be over 21 and under 32 years of age at the time of application Particulars regarding pay promotion &c, in the Service can be obtained from the Secretary, Military Department

ROYAL ARMY MEDICAL CORPS

Temporary Captain Fred W Mackenzie (retired pay) relinquishes his commission on account of ill health

Temporary Lieutenants to be temporary Captains A L Thornley R P Williams, T E Ferguson L W Magill H H Taylor, G Fleming C G MacKay J N F Fergusson, C Price-Jones, C P Symonds G Pollock F T Rees F D Johnson J M Anderson, R D Clayton, T J Lydon, R A. Facey, M J Houghton R. S Armour, W Templeman, W S O Waring, C B Kidd P M MacLachlan, H B Lawson A. Hipwell H V Walsh, G K. Thompson D B Pascall, F I MacKinnon, J C McKerrow, T P Seymour, E K Gawn, D Gillespie J W Pettinger H M Macgill W S Finch, R J Harris H F Holmden C G Monro H. G Dresing J H K Sykes C K. McKerrow, J T Myles, J I Arnold, V E Badcock W H Scott, H H Sloane, E R Fothergill, J B T Keswick, L Game, W T Williamson, W Macleod A Mathieson W S B Hay, D Fletcher D A. Donald, T L. Fleming, C B Wainwright T W Buckley, R A. H Fulton C N Corbett, C C Worster Drought, H T Lippiatt, S J Staples, M Douglas, J H White, and A Drouin

Temporary Lieutenants relinquishing their commissions G W Deeping E M Rooke E L Hicker, R H Williams C S Thomson, R H Mercer, W R Morris L O Weinman G W Dryland, W Bates W Doyle, E Ryan C S Woodd A J Lomas O S Wraith D C Laird B H Greensill A. J V McDonnell J C Walker C H Sills A Bryans E R R Cheesman H G Kilner H S C Darbyshire R Nairn A. J Turner, F Copeland R V G Monckton R Rennie T R Earls Davis J D MacKay, J G McLeod M J Vigneux E V Sullivan, W E Campbell G S Williams and F J Sadler

To be temporary Lieutenants A Dewar D P Blair, A R M Brenan, J Clark R E Marwick G P G Beckett C F Davey, W St A. Hubbard A P Robertson, J P Mathie J A B Hammond, D D Pinnock T S Law E G H Weir, J B Donaldson G D Watkins, J D Doherty, J M Lazenby, R R Law, H R Mavo and C W Brown

P D Magowan to be temporary Lieutenant whilst employed at the Lord Derby War Hospital

Canadian Army Medical Corps Lieutenant F H Wheeler to be temporary Captain

TERRITORIAL FORCE

Army Medical Services

Lieutenant Colonel F Kelly Highland Field Ambulance to be Assistant Director of Medical Services, a Mounted Division with temporary rank of Colonel

Captain W T Rowe from Attached to Units other than Medical Units to be Deputy Assistant Director of Medical Services a Mounted Division

Royal Army Medical Corps

Lancashire Field Ambulance Captain A Callam to be temporary Lieutenant Colonel whilst commanding a Field Ambulance Captain (temporary Major) H W Pritchard to be Major

London Field Ambulance Captain (temporary Lieutenant Colonel) G L L Lawson relinquishes his temporary rank on ceasing to command a Field Ambulance

Northumbrian Field Ambulance A F Raine to be Lieutenant

Wessex Field Ambulance Captain P R Bolus from Attached to Units other than Medical Units to be Captain

Eastern General Hospital Lieutenant Colonel Sir T Clifford Allbutt K C B F R S resigns his commission

North Midland Field Ambulance Captain W B Williams relinquishes his commission.

East Anglian Division Sir T Clifford Allbutt K.C B, F R S, late Lieutenant Colonel, Eastern General Hospital, is appointed to the Hon Colonelcy of the R A M C, East Anglian Division

West Lancashire Field Ambulance Major W Macdonald to be temporary Lieutenant-Colonel whilst commanding a Field Ambulance Captain M I Dick, from West Lancashire Field Ambulance, to be Captain

Home Counties Division Sanitary Section Lieutenant F T H Wood to be Captain

Welsh Casualty Clearing Station Lieutenant A W Clarke to be Captain

Attached to Units other than Medical Units—Captain R P Ryan, from a Wessex Field Ambulance, and Captain H G Dodd, from a Northern General Hospital, to be Captains Temporary Lieutenant C A. E I Brownlee, from Royal Regiment of Artillery, and T Higson to be Lieutenants

VOLUNTEER OFFICERS' DECORATION

Surgeon Major W Richardson, Isle of Man Volunteers, has received the Volunteer Officers' Decoration

VITAL STATISTICS

HEALTH OF ENGLISH TOWNS

In the 96 largest English and Welsh towns with populations exceeding 50,000 persons at the last Census, 7922 births and 3693 deaths were registered during the week ended Saturday, July 8th The annual rate of mortality in these towns which had been 12 3 12 6 and 11 6 per 1000 in the three preceding weeks, fell in the week under notice to 11 1 per 1000 of their aggregate civil population estimated at 17,312,295 persons for the year 1915 During the 13 weeks of last quarter the mean annual death rate in these towns averaged 14 3, against 13 8 per 1000 in London Among the several towns the death rate last week ranged from 4 6 in Wimbledon, 4 7 in Ealing, 5·0 in Leyton 5 5 in Eastbourne, and 5 8 in Gillingham and in Bournemouth, to 16·0 in Huddersfield, 16 1 in Lincoln and in Rochdale and 16 4 in Walsall and in Darlington

The 3693 deaths from all causes were 159 below the number in the previous week, and included 224 which were referred to the principal epidemic diseases, against numbers declining from 335 to 225 in the five preceding weeks Of these 224 deaths, 61 resulted from whooping cough, 60 from measles, 54 from infantile diarrhœal diseases, 36 from diphtheria 9 from enteric fever, and 4 from scarlet fever but not one from small pox. The annual death rate from these diseases was equal to 0·7 per 1000 and coincided with that recorded in each of the three preceding weeks The deaths attributed to whooping cough, which had been 76, 77, and 55 in the three preceding weeks, rose to 61 and included 11 in London, 5 each in Birmingham and Sheffield, 4 in Sunderland, and 3 in Oldham The deaths referred to measles, which had been 65 67 and 68 in the three preceding weeks, fell to 60, and caused the highest annual death rates of 1 1 in Sheffield, 1 5 in Oldham 1 6 in Wolverhampton, 2 3 in Gillingham and 3 1 in Dudley The deaths of infants (under 2 years) from diarrhœa and enteritis which had been 52, 45, and 50 in the three preceding weeks rose to 54 of which 19 were registered in London, 5 in Liverpool, and 3 in Nottingham The deaths attributed to diphtheria, which had been 34 27 and 29 in the three preceding weeks, rose to 36, and included 14 in London and 3 each in Tottenham and Birmingham The deaths referred to enteric fever which had been 11 13 and 10 in the three preceding weeks numbered 9 and included 2 each in Manchester and Bradford The fatal cases of scarlet fever, which had been 9 15 and 13 in the three preceding weeks fell to 4 of which 2 occurred in London

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 1302 1303 and 1273 at the end of the three preceding weeks further fell to 1252 on Saturday last, 170 new cases were admitted during the week, against 149 171 and 162 in the three preceding weeks These hospitals also contained on Saturday last 1303 cases of diphtheria 202 of measles 173 of whooping-cough and 47 of enteric fever, but not one of small pox. The 857 deaths from all causes in London were 16 fewer than in the previous week and corresponded to an annual death rate of 10·7 per 1000 The deaths referred to diseases of the respiratory system which had been 137 157, and 107 in the three preceding weeks, fell to 95 in the week under notice

Of the 3693 deaths from all causes in the 96 towns 125 resulted from violence and 25 were the subject of coroners' inquests while 1168 occurred in public institutions The causes of 34, or 0·9 per cent of the total deaths were not certified either by a registered medical practitioner or

foundation of a new college in Bombay The trustees of the late Seth Gordhandan Sunderdass Charities have offered to the corporation the princely donation of Rs 12 lakhs from their funds for founding a medical college in Bombay The corporation has taken an enlightened view of the proposal and has asked their Medical Relief Committee to report on its practicability "The Bombay Medical Union," said their President, "is delighted with the offer, considering it to be conceived in the interests of medical science by the indigenous qualified profession The present system of medical education in India was conceived in 1845 when not a single Indian was possessed of Western medical education and qualification Naturally, officers of the Indian Medical Service in the employ of the Government were put in charge of teaching colleges like the Grant Medical College on our side To those pioneers of medical education we owe a deep debt of gratitude for their unselfish efforts in the cause of medical education But the pupils of the college, owing to the system of the covenants on which the European teachers were engaged when coming out to India could not become teachers in their own college, though certain appointments have been made in the junior subject of botany" Dr Shroff added that recently under the stress of war three appointments from among the Indian medical profession had been made to professorial chairs

Shortage of Medical Men

The Government of India have had under consideration the question of offering enhanced terms to civil sub-assistant surgeons on military duty, including those already employed, who undertake liability for field service out of India and on expeditions based on the frontiers of India during the present emergency They have now decided that each civil sub-assistant surgeon on signing the declaration, undertaking the liability to proceed on active service when ordered, will receive his civil pay plus military pay plus compensation for loss of private practice, plus an outfit allowance, free rations and the usual service concessions for families These liberal terms ought to draw a very large number of these men from civil to military employ, more especially as in addition to the above each sub assistant surgeon will receive permanent promotion without departmental examination to the next higher grade should such promotion become due whilst in military employment, provided that he has a good record of service generally and has been reported on by the military authorities as fit for promotion Further it has been specially provided that the civil prospects of such civil sub-assistant surgeons as volunteer for field service shall not be adversely affected The fact of undertaking liability for field service will on the contrary, be taken into account as conferring a special claim to consideration hereafter should prospects of promotion offer for which the sub-assistant surgeon is otherwise fit

Plantain Juice as an Antidote for Snake bite

I recorded recently a case of alleged cure of snake bite at Colombo by the use of plantain juice* A case of snake bite at Serampore will therefore be of interest where plantain juice was used A servant of the principal of the Government Weaving College was bitten by a venomous snake in the foot The principal applied a ligature eight inches above the bitten part and then cut it with a lancet and applied permanganate of potash making the wound bleed freely He then extracted some juice from a plantain tree and gave the patient about a cupful to drink After drinking the plantain juice the man seemed to recover a little and the wound was washed He was made to walk up and down, and in the morning when the ligature was removed, the man was declared cured

June 10th

* THE LANCET April 1st 1916 p 746

THE RESEARCH DEFENCE SOCIETY —The annual general meeting of this society has been postponed owing to the war many of its members being engaged on active service while others have their time fully occupied in various kinds of work on behalf of the sick and wounded in this country But the propaganda work of the society is still actively carried on under the direction of Mr Stephen Paget Among the most recent literature issued by the society are reprints from the *Field* and *English Mechanic* bringing before the public in clear language the value of scientific pathological work both to our Army and to the civilian population

ASYLUM REPORTS

Kingseat Mental Hospital (Aberdeen City District Board of Control) (Annual Report for the Year 1915) —The total number of cases under treatment during the year was 665 the average daily number resident being 527 The number of admissions amounted to 171, of which 49 were transferred from other asylums Of those admitted 2 were not insane, 44 were curable, 107 were absolutely incurable, and in 18 the prospect of recovery was doubtful The most prevalent forms of disease were those embraced under the term manic depressive insanity, imbecility and idiocy, the alcoholic psychoses, primary dementia of adolescence epileptic insanity, and arterio-pathic and senile dementia. With regard to the duration of illness prior to admission it was found that of the direct admissions 93 had been mentally ill for less than three months, 8 for less than 12 months, and the remainder for over 12 months Hereditary predisposition was present in 33 cases and 18 had suffered from one or more previous attacks The discharges during the year numbered 75, the percentage of recoveries on the admissions being 32 1, which was 4 per cent lower than in the previous year This decrease was due to the admission of 40 incurable patients from Edinburgh and Glasgow respectively Excluding these extraneous admissions, the percentage of recoveries among the Aberdeen admissions was 40 4, being 4 per cent higher than in 1914 There were 50 deaths—29 men and 21 women, of these, 12 were over 70 years of age The war has had so far practically no material effect on the admission rate.

Middlesbrough County Borough Mental Hospital (Annual Report for the Year 1915) —The total number of cases under treatment during the year was 639, with an average daily number resident of 472 The admissions, which totalled 207 included 116 cases transferred from Newcastle City Asylum in April There were 79 from the borough, a decrease of 5 as compared with the previous year but the number resident was increased by 9 The proportion of the insane to the estimated population of the borough was 1 to 402, or 24 8 per 10 000 the figures for England and Wales being 1 to 266, or 37 6 per 10 000 The total number of discharges, 96 included 54 patients transferred to Chester Asylum The recoveries were 30, making a recovery rate of 37 on the direct admissions The report states that one of the patients who escaped was a man who had been in the asylum since shortly after it was opened in 1898 He was ordinarily well behaved and was allowed a good deal of liberty, but he had a habit of talking to himself and cursing imaginary enemies while at work One morning he did not return to breakfast and when next heard of he was with the Royal Engineers in Flanders The deaths numbered 58 making a rate of 12 2 on the average daily number resident Post-mortem examination was made in 41 cases There were 17 private patients on the register at the end of the year 4 having been admitted, 1 discharged recovered and 6 having died during the year

County and City of Worcester Lunatic Asylum Powick (Annual Report for the Year 1915) —The total number of cases under treatment during the year was 1531, the average daily number resident being 1262 There were 405 admissions, of which 144 were direct the remainder being transferred from other asylums The discharges numbered 83 of which 59 were recovered making a recovery rate of 40 95 per cent on the direct admissions One patient was discharged "not insane" A male patient was prosecuted for a murderous assault on the son of the medical superintendent He was found "Guilty but insane" He was removed to a criminal asylum An interesting medico-legal feature was that the man appealed against the verdict The Court of Appeal held that the verdict "Guilty but insane" was no a conviction, and that a man who was not convicted could no appeal There were 99 deaths making a death rate of 7 9 per cent on the daily average number resident The principal causes of death were as follows Pulmonary tuberculosis 21 heart disease 20, senile decay 17, epilepsy 8 and pneumonia 6 Post mortem examinations were held in 63 cases a percentage of 89 8 On Jan 1st 1915 there were 23 private patients in residence Four females were discharged One male and two females died On Dec 31st 1915 there were 19 remaining

THE PREVENTION OF BILHARZIA INFECTION

To the Editor of THE LANCET

SIR,—I have found that 116 out of 596, or 19 per cent., of the fresh water snails of Natal harbour cercariæ at this period of the year Of those infected, 76 contain "tadpole" forms and 40 contain cercariæ with bifid tails So far, these latter have only been found in one species of snail, Physopsis africana. The cercariæ with bifid tails are of five varieties One of them possesses eye spots and is similar to that which has been associated with bilharzia disease amongst birds in Egypt This form is uncommon Another possesses a muscular pharynx, this also is a rare form

The cercariæ which answer to the description of those which cause bilharzia symptoms in man and beast in Egypt and the Far East are the more common of the forms with bifid tails met with in Natal, being found in 14 per cent of the specimens of Physopsis collected from Durban and in 15 per cent of the specimens collected from the Umsinduzi river at Pietermaritzburg One common form has very long prongs to the tail and is considered to be an avian trematode, the other has fan like prongs to the tail and is believed to be the human form

Of 31 specimens of Physopsis africana from the Umsinduzi river which I exposed to infection by miracidia obtained from the urine of a patient suffering from bilharziosis on March 31st, 14 specimens, or 45 per cent, contained cercariæ with bifid tails on April 22nd, whilst 6 young sporocysts were found in specimens of the same snail within 14 days after being exposed to infection in the same way In 4 of these small cercariæ with bifid tails were seen, in the other 2 the cercariæ were young and ill defined

I am, Sir, yours faithfully,

F G CAWSTON, M B, B C Cantab

Pietermaritzburg Natal May 13th 1916

THE EFFECT OF FERRIVINE AND INTRAMINE ON SYPHILIS

To the Editor of THE LANCET

SIR,—In order to advance our knowledge of chemotherapy I asked Lieutenant-Colonel L W Harrison and Captain C H Mills to kindly persuade the eminent chemists, whom my work on the subject has bewildered, to come forward and discuss the statements which are said to be contrary to the knowledge we possess Instead they again quote Professor Bayliss, who I am sure would never have raised the objections he did had he studied my research work or repeated those experiments upon serum which formed the foundation of that work Furthermore, all Professor Bayliss's objections were met by me in a letter which was published[1] before Colonel Harrison and Captain Mills wrote the letter which appears in your issue of July 1st Professor Bayliss was the only speaker who criticised my views, therefore from the use of the word "chemists" there must still be at least one other who is hiding his light underneath a bushel It is true that another speaker—namely, Dr C H Browning, whom Colonel Harrison and Captain Mills quote—associated himself with Professor Bayliss Perhaps Colonel Harrison and Captain Mills will either prevail upon Dr C H Browning to come forward or will take it upon themselves to point out the highly speculative assertions to which they allude A little discussion on this aspect of the subject would I venture to think lead to the dealing of the death blow to Ehrlich's theory of chemotherapy which is not only the acme of speculation but illogical from start to finish Your readers have probably noticed that not one single word in support of Ehrlich's views has emanated from one of those who appear to be so troubled by my own

The mention of the Sp pallida in the next paragraph only leads me to state once again that unless my work on the leucocyto-con syphilidis be repeated, it will be impossible for the critics to understand fully the other links in my chain The Sp pallida is not the cause of syphilis and its death should not be our main aim in chemotherapy the spore being the phase we should strive to kill Now the spore is uninfluenced by salvarsan while the Sp pallida is killed almost instantaneously therefore salvarsan does not cure syphilis a fact we should all know but do not realise From the 400 odd injections of ferrivine and intramine I have administered, I have proved, I think beyond all doubt, that ferrivine will do exactly what salvarsan will not do and *vice versa* Ferrivine will remove indurative chancres, lymphangitis, and lymphadenitis, which salvarsan will not, but it will not cause the uniform disappearance of mucous papules, lesions which are particularly sensitive to salvarsan Intramine acts as a complement to any metallic compound, and has caused lesions to disappear which have either been aggravated or have not responded to salvarsan The rapidity with which intramine will remove the induration of chancres and the resistant skin papules is extraordinary If Colonel Harrison and Captain Mills's experience gave them results different from those obtained by myself, would it not have been more in the interests of science if they had tried to find out wherein the difference lay, instead of stating that they had obtained such and such results, therefore the action of intramine and ferrivine is absolutely nil No object would have been gained in my opening this discussion if the sulphur and iron compounds were perfect We are now in the position of being able to abolish the worship of the German syphilitic trinity (Sp pallida, Wassermann reaction, salvarsan) and to strike along paths of our making, hence my object in wishing for a discussion was to seek coöperation with a view to perfecting a non toxic metallic compound which would render the use of the toxic element arsenic superfluous

Before closing this letter I should like to point out that, with a view of rendering rational chemotherapy a British product, I handed over (December, 1915) a copy of my first paper on the subject before it appeared in THE LANCET (January, 1916) to the National Medical Research Committee, offering at the same time to lay the proofs of my statements before them and as much of the drugs to experiment with as might be required No representative of that committee came to see me, or visited the Lock Hospital, or wrote for supplies of the drugs In March, 1916, I wrote asking for the report of the investigations which had been promised me All I received was the return of my paper I sincerely trust that Colonel Harrison and Captain Mills will continue this discussion

I am, Sir, yours faithfully,

Wimpole-street W July 2nd 1916 J E R MCDONAGH

[1] Brit Med Jour vol i 917 p 90

SCARLET FEVER CARRIERS

To the Editor of THE LANCET

SIR,—In reference to Dr Donald Hood's letter in your issue of July 1st *re* the infectious condition of patients desquamating after scarlet fever, the following case is of interest

The patient, a girl aged 4, was admitted to the London Fever Hospital on Jan 6th suffering from a mild attack of scarlet fever The temperature rose to 101° F on the second day of illness and then fell to normal There were no complications of any kind, and the child was discharged six weeks later quite well with no trace of desquamation At no time was there any discharge from the ear or nose She went to stay in the country with three elderly ladies Ten days after she had been there one of these contracted scarlet fever and subsequently died A sister who nursed her also contracted scarlet fever The child, who was in perfect health and free from any trace of desquamation, then went home On March 18th—i e, a month after the child had left the fever hospital—her brother came home from school to spend the week end He contracted scarlet fever on March 23rd, had a mild attack, and recovered When at home he had kissed his sister Whether or no desquamation is in itself infectious is a disputed point In this instance there was no trace of desquamation, but it is clear that the child was a scarlet fever carrier I think there can be little doubt that the infection here lurked in the throat but in our ignorance as to the nature of the organism responsible for scarlet fever it is impossible to detect carriers. I am, however convinced from this and other similar cases that there are scarlet fever carriers who are not desquamating and have no nasal or aural discharges, and it seems practically certain that the infection is conveyed by the scarlet fever organism in the throat, which may in certain cases retain its vitality for a prolonged period, in the same way as the diphtheria bacillus in diphtheria carriers I am, Sir, yours faithfully

July 3rd 1916 JOHN F H BROADBENT

by a coroner after inquest All the causes of death were duly certified in London and in its 14 suburban districts, in Sheffield, Leeds, Bristol, Bradford, and in 57 other smaller towns Of the 34 uncertified causes, 6 were registered in Liverpool, 5 in Birmingham, 3 in Manchester, and 2 each in Stoke-on Trent, Barrow in Furness, and Middlesbrough

HEALTH OF SCOTCH TOWNS

In the 16 largest Scotch towns with an aggregate population estimated at 2 372,000 persons at the middle of this year, 1067 births and 563 deaths were registered during the week ended Saturday, July 8th The annual rate of mortality in these towns, which had been 12 2, 13 4, and 12 6 per 1000 in the three preceding weeks, fell to 12 4 per 1000 in the week under notice During the 13 weeks of last quarter the mean annual death rate in these towns averaged 15 3, against 14 3 per 1000 in the large English towns Among the several towns the death rate last week ranged from 1 6 in Ayr 6 9 in Clydebank, and 9 0 in Dundee, to 15 5 in Paisley, 18 7 in Perth, and 19 6 in Kilmarnock

The 563 deaths from all causes were 11 fewer than the number in the previous week, and included 46 which were referred to the principal epidemic diseases, against numbers increasing from 39 to 54 in the three preceding weeks Of these 46 deaths, 19 resulted from measles, 8 each from scarlet fever and whooping-cough, 5 each from diphtheria and infantile diarrhœal diseases, and 1 from enteric fever, but not one from small pox The annual death rate from these diseases was equal to 1·0, against 0 7 per 1000 in the large English towns The deaths attributed to measles, which had increased from 13 to 28 in the four preceding weeks, fell to 19, and included 10 in Glasgow and 2 each in Edinburgh, Dundee, Leith, and Greenock The deaths referred to whooping-cough, which had been 7, 4, and 5 in the three preceding weeks, rose to 8, and comprised 5 in Glasgow, 2 in Aberdeen, and 1 in Coatbridge The fatal cases of scarlet fever, which had been 6, 7, and 1 in the three preceding weeks rose to 8, and included 4 in Paisley, 3 in Glasgow, and 1 in Kilmarnock The 5 deaths attributed to diphtheria, of which 2 occurred in Edinburgh, were slightly below the average in the earlier weeks of the quarter The deaths of infants (under 2 years) from diarrhœa and enteritis, which had been 4, 11, and 13 in the three preceding weeks, fell to 5, and included 3 in Glasgow The fatal case of enteric fever was registered in Glasgow

The deaths referred to diseases of the respiratory system, which had been 75, 75, and 57 in the three preceding weeks, rose to 64 in the week under notice, but were 12 below the number registered in the corresponding week of last year The deaths from violence numbered 23, against 28 and 22 in the two preceding weeks

HEALTH OF IRISH TOWNS

In the registration area of Dublin 240 births and 134 deaths were registered during the week ended Saturday, July 8th The annual rate of mortality, which had been 17 8, 15 9, and 17 3 per 1000 in the three preceding weeks was 17 6 in the week under review, against 10 7 and 12 9 per 1000 in London and Glasgow respectively

Of the 134 deaths at all ages, 28 related to infants under 1 year and 39 to persons aged 65 years and upwards The deaths referred to the principal epidemic diseases numbered 12 and comprised 8 from infantile diarrhœa, 2 from scarlet fever, and 1 each from enteric fever and whooping-cough

The causes of 4 deaths were uncertified, and 1 other was the subject of a coroner's inquest while 48 or 35 per cent, of the total deaths occurred in public institutions

During the same period 199 births and 93 deaths were registered in the city of Belfast The deaths corresponded to an annual rate of 12 4, or 1 1 per 1000 less than in the previous week, and included 14 of infants under 1 year and 24 of persons aged 65 years and upwards Two deaths were referred to measles and 1 each to whooping-cough and infantile diarrhœa The causes of 2 deaths were uncertified and 1 other was the subject of a coroner's inquest, while 24 occurred in public institutions

---

A SPECIAL prize Fellowship of £100, offered by the Federation of University Women to encourage research on some questions of special interest in the present national crisis has been awarded to Dr Alice Lee Fellow of University College London who is about to undertake an investigation into the birth rate as affected by present conditions

EDINBURGH FACULTY OF MEDICINE THE ADMISSION OF WOMEN —The recommendation of the Senatus Academicus that the classes in the Faculty of Medicine should be open to women was discussed by the University Court on Monday last and the principle agreed to A committee was appointed to prepare a scheme to carry out the recommendation

Correspondence.

"Audi alteram partem."

THE NATURE OF THE CHANGES WHICH OCCUR IN MUSCLE AFTER NERVE SECTION

To the Editor of THE LANCET

SIR,—In your issue of July 1st there appeared a very interesting paper by Professor J N Langley on the above subject, concerning which I may perhaps be permitted to make a few comments from the clinical point of view

1. Professor Langley suggests that the wasting of muscles after nerve section may be a "fatigue atrophy," owing to their being in a state of constant fibrillation. While continuous over fatigue may explain their diminution in size, it obviously cannot account for these changes in electrical response For these changes may persist after the muscle has apparently recovered and is again of normal size

2 Reference is made to a paper of mine in which I advocated rhythmical tetanising contractions in the treatment of nerve muscle injuries I was careful to explain, however, that such treatment presupposed that it was desirable to cause contraction of some sort in any given case, and my contention was that rhythmical tetanising contractions were more effective than "galvanic twitches" or single condenser impulses But I should not like it to be thought that I advocate contraction provoking currents in every case of nerve injury In cases of complete nerve severance where end to-end union has been performed, artificially provoked contraction may be actually harmful in the early months A mild sinusoidal bath is the most that should be used until there is some definite sign that the nerve trunk is again conducting motor impulses This may be shown either by (*a*) improved condenser response in the muscle itself, (*b*) signs of electrical conductivity in the nerve when stimulated above the site of injury, (*c*) faint return of voluntary power When this stage of recovery has been reached my experience is that rhythmical tetanisation of the muscles, either by direct stimulation or by exciting the motor nerve, becomes of vastly greater value than the sinusoidal bath or even than "single impulse" contractions The greatest care must however be exercised not to over fatigue the muscles

3 With regard to the mode of disappearance of the electric responses after complete nerve blockage observations with the condenser instrument show that the process is gradual, from 8 to 12 weeks being occupied in some cases before the extreme grades of the Lewis Jones scale are reached This assumes a constant voltage of 100—the only change being in the size of condenser, and consequently the length of impulse employed If the voltage be raised, a shorter impulse suffices Not only so but if a tetanising discharge is being used—as in my modification of the original Lewis Jones instrument—the more rapidly the impulses succeed each other the greater the effect even though the individual impulses remain of the same length It is thus easy to believe that sufficiently violent faradism might be able to cause contraction in any muscle no matter how long severed from its motor nerve From the clinical point of view however, we are able to say that certain conclusions sufficiently accurate to be of practical use may be drawn from the response of muscle and nerve to electrical impulses of definite length delivered at a fixed voltage and under standardised conditions which admit of exact reproduction by various observers

In conclusion I would respectfully press upon the notice of the pure physiologists the old adage that science is measurement, and urge them to abandon in their experiments the use of an instrument so notoriously incapable of standardisation as the faradic coil

I am Sir, yours faithfully

F HERMAN JOHNSON

Cavendish square W July 5th 1916

ATROPA BELLADONNA

To the Editor of THE LANCET

SIR,—My attention has just been called to an annotation on the Cultivation of Medicinal Herbs which appeared in THE LANCET on June 17th in which the passage occurs "Belladonna is a weed in this country" I am inclined to think this must refer to the woody nightshade (Solanum dulcamara), and not to the official plant Atropa belladonna does grow wild but not to a very large extent, a mature plant is shrub-like, 4 to 5 feet high, with as many as 20 stout stems to a root The matter was referred to in the *Daily Mail* of June 10th and my name mentioned as a grower of belladonna, in consequence I have received many hundred specimens for identification, only about 1 per cent of which were belladonna, and nearly all the remainder the woody nightshade We have not nearly sufficient belladonna in this country for our national requirements, but with foxglove the case is different—there is abundant—but frequently growing in remote districts making the picking and transport to manufacturers difficult. Systematic cultivation of both these plants will greatly lessen the cost and at the same time make us independent of foreign supplies

I am, Sir, yours faithfully,

J BEETHAM WILSON

95 High street, Dorking July 6th 1916

*** Our note, of course referred to the official plant, which is a widely distributed wild plant on the chalk soils of the east and south of the country We are aware that the public almost to a man believes that Solanum dulcamara is the belladonna of the Pharmacopœia In referring to belladonna as "a weed" we did not mean to imply that it was very common, but that where it occurred it grew without cultivation —ED L

"PIRATE" DOCTORS

To the Editor of THE LANCET

SIR,—Permit me to correct a few inaccuracies in your correspondent's letter of July 1st headed "'Pirate' Doctors," in which I am personally accused of attacking doctors for demanding what he alleges are reasonable fees This is the direct opposite to what my letter of June 12th states I there stated that, thanks to the loyal help afforded by the majority of those acting as locums, the demand had been so far met at reasonable fees and that the demands of the very small minority, with whom your correspondent associates himself, could soon be stopped by refusing to pay their demands

Surely in such times as the present no one with any patriotism would for a moment suggest that the time is ripe for the profession to raise their fees by the 150 per cent your correspondent hints at I have yet to learn that those who have so nobly given up their practices and joined the Royal Army Medical Corps to help their suffering fellow countrymen are receiving as he alleges, £2 or £4 per day In my ignorance I understood the remuneration was usually 24s a day or about the same as paid to a locum tenens, except that the latter has no outgoings to pay and runs no risks May I also remind your correspondent that within my recollection locum tenens' fees were £2 2s to £3 3s a week and therefore the present fee of £7 7s which he considers inadequate is an increase of over 200 per cent

Once again may I thank the large majority of locum tenens and others who are loyally trying to keep together the practices of those who have joined the Royal Army Medical Corps —I am Sir yours faithfully,

PERCIVAL TURNER.

A lam street Adelphi W C July 11th 1916

CHELSEA HOSPITAL FOR WOMEN —The new buildings of the Chelsea Hospital for Women in Arthur street were formally opened by the Queen on Tuesday last The hospital was established in 1871 in the Fulham road and its useful work has long been hampered by inadequate accommodation especially in the out patient department There were formerly 50 beds for in patients and accommodation is now to be provided for 80 A sum of £30 000 is still required to complete the building scheme

The War.

THE CASUALTY LIST

THE following names of medical officers appear among the casualties announced since our last issue —

Killed

Captain H C Mulkern, R A M C, received his medical education at St Mary's Hospital, London, and qualified in 1905 When war broke out he was a surgeon at the Kingston Barracks Military Hospital, and joined the R A.M C in December, 1914

Lieutenant D Rodger, R A.M C, qualified in 1907 at Manchester, and took the F R C S Edin in 1912 Proceeding to Australia he became Ophthalmic Inspector of Schools to the Queensland Government and relinquished the appointment to take up war work, joining the R A M C in December 1915

Died of Wounds

Lieutenant E C Lambert, R A M C, attached to the East Surrey Regiment, received his medical education at Westminster Hospital, and qualified in 1898 He had held appointments at Banstead, Darenth, and Hanwell Asylums, and prior to joining the R.A M C in December 1915, was assistant medical officer at Wandsworth workhouse

Died

Lieutenant Colonel C Monk, I M S, qualified in 1874, and was for some time surgeon at the Military Hospital, Semitya He was in retirement when the war broke out, and died after an operation at the 2nd London General Hospital, of which he was lieutenant-colonel in charge

Captain A Seabrooke, R A M C was educated at Cambridge and at Guy's Hospital, qualifying in 1912, and was in practice in Grays, Essex, before joining the R A M C

Wounded

Lieutenant A C Taylor, R A M C

Captain H B Goulding, R A M C, attached to the Seaforth Highlanders

Lieutenant P H Macdonald, R A M C, attached to the Sherwood Foresters

Captain A Hamilton, R A M C, attached to the West Yorks Regiment

Captain W K A Richards R A M C

Captain J H Glover, R A.M C

Captain J H Tomlinson, R A M C

Captain R Dearsley New Zealand Medical Corps

Captain G D Fairley, R A M C, attached to the Royal Scots Fusiliers

Lieutenant J R Hall, R A M C

Lieutenant J K Muir, R A.M C, attached to the Northumberland Fusiliers

Missing believed Killed

Captain J L Green, R A M C, attached to the Sherwood Foresters

Previously Reported believed taken Prisoners at Kut el Amara, now reported not Prisoners of War

Brevet-Lieutenant-Colonel S Anderson I M S

Captain F H Salisbury, I M S

THE NAVAL BATTLE OF JUTLAND, MAY 31ST, 1916

In the despatch received from Admiral Sir John Jellicoe Commander in Chief of the Grand Fleet, and the subsidiary despatch of Vice Admiral Sir David Beatty, the following references to medical operations occur —

The work of the medical officers of the Fleet, carried out very largely under the most difficult conditions was entirely admirable and invaluable Lacking in many cases all the essentials for performing critical operations and with their staff seriously depleted by casualties they worked untiringly and with the greatest success To them we owe a deep debt of gratitude

Exceptional skill was displayed by the medical officers of the Fleet They performed operations and tended the wounded under conditions of extreme difficulty In some cases their staff was seriously depleted by casualties, and the inevitable lack of such essentials as adequate light hot water &c in ships damaged by shell fire tried their skill, resource and physical endurance to the utmost

HUDDERSFIELD WAR HOSPITAL MAGAZINE —This is an addition to the journals published by several of our war hospitals and like its contemporaries will devote its profits to extra comforts for the sick and wounded Among the contents of No 1 the July issue is the first instalment of extracts taken from a diary recording the story of the retreat from Mons Major E G Coward is the editor, and the price is 2d monthly

THE INFECTIOUS CONDITION OF PATIENTS DESQUAMATING AFTER SCARLET FEVER

To the Editor of THE LANCET

SIR,—Dr Donald W O Hood in your issue of July 1st relates an interesting instance which points to the probability of an officer with desquamating feet having infected other officers occupying beds in the same ward Dr Hood apparently jumps to the conclusion that, granted the fact of infection, this was due to the desquamation It is more probable, however, that it was due to infectious particles discharged from the nose or throat Every medical officer of health knows of many cases of scarlet fever which appear to be infectious long after desquamation as well as all other pathological conditions have ceased When this occurs with diphtheria we are commonly able to detect diphtheria bacilli in the throat or nose We have not got the advantage of bacteriological diagnosis for scarlet fever, but analogy would indicate that the source of infection is the same as it is proved to be in diphtheria—viz the naso pharynx.

I am, Sir, yours faithfully,

SIDNEY DAVIES,
Medical Officer of Health

Public Health Department Town Hall Woolwich
July 10th, 1916

FAT-HEADEDNESS

To the Editor of THE LANCET

SIR,—The letter of the Director of the Westminster Hospital Laboratory published in your issue of July 1st points a valuable moral and well illustrates the prevalent neglect of science and want of coördinated intelligence in authoritative headquarters Laboratory assistants engaged in the work indicated by Dr R G Hebb are not trained in a day, and it is well known that medical assistants in any branch of work are scarcely to be found at the present time It is needless to insist on the necessity of a pathological laboratory as an integral part of an up to-date hospital, the average layman knows this quite well But some in authority seem to think that there is virtue in a laboratory without workers, just as others responsible for the National Insurance Act seemed, at least at first to be of opinion that adequate medical attendance consisted in a momentary interview and a bottle of physic

Dr Hebb supposes that there is no use in appealing But it seems to me that if the governing body of Westminster Hospital were to appeal to the Army medical authorities a possible cure for this particular case of official lipocephaloma might easily be achieved —I am Sir, yours faithfully,

H BRYAN DONKIN

London July 6th 1916

To the Editor of THE LANCET

SIR,—Dr R G Hebb, in his letter which appears in your issue of July 1st, does not mention by whom the application for the exemption of his laboratory assistants was made If it was made by himself and was in a tone approaching that of his letter can it be wondered at that it was refused?

An application was made on behalf of a similar official at the hospital which I write from and on appearing before the tribunal we were treated most reasonably and courteously We did not get all we asked but we should certainly not characterise as a "fat-headed committee" a body of gentlemen who did not see eye to eye with us but who are doing their duty to their country (and a very difficult duty) as well as Dr Hebb himself —I am Sir yours faithfully

HOSPITAL SUPERINTENDENT

July 5th 1916

WOMEN STUDENTS AT THE LONDON HOSPITALS

To the Editor of THE LANCET

SIR,—Sir John Broadbent's letter in your issue of to-day demands a word of explanation from me I only mentioned St George's Hospital as having admitted women students to its wards because that hospital was the only one of the four hospitals with which we at King's College are associated which had taken this step up to the date of my letter I was dealing with the matter solely from the point of view of providing clinical instruction for women students who take their preliminary and intermediate work with us I was quite aware that St Mary's Hospital had thrown open its doors to women students, and I understood from a letter which Sir John Broadbent wrote to me about a month ago that his agreement with the London School of Medicine for Women precluded him from taking women medical students from any other source From the King's College standpoint therefore, St Mary's Hospital was of no use to us and that is the simple reason why I omitted to mention their recent action I am, Sir, yours faithfully,

W D HALLIBURTON,
Dean of Medical Science Faculty King's College London

July 8th, 1916

THE SHOCKLESS OPERATION

To the Editor of THE LANCET

SIR —I have read with great interest Mr P Lockhart Mummery's article with the above title in your issue of July 1st and only wish he had been present in 1914 at the discussion on "Anoci Association" at the annual meeting of the British Medical Association, when Colonel H M W Gray had a very hostile audience to face until his subsequent demonstration in his theatre at the Aberdeen Infirmary Having used Colonel Gray's technique for the past four or five years and seen a good deal of his own work, I would like to touch on a few points which may prove interesting to Mr Lockhart Mummery and others who are following Crile's methods

As regards the preliminary narcotic, I find that omnopon and scopolamine or alopon and scopolamine, the latter an Allen and Hanburys' preparation, are preferable to morphia and scopolamine—the former give a quieter sleep with much less headache and morphia squeamishness afterwards The use of nitrous oxide or any inhalation anæsthetic is unnecessary if the preliminary narcotic is given in suitable dose and the system of local anæsthesia is perfect One cannot be sure of having blocked all nociceptors if the patient is "quite unconscious," although a skilled anæsthetist might observe "signs of stimulation" Another objection to nitrous oxide and oxygen analgesia is the risk of considerable struggling, this, of course, is not very frequent but might prove very dangerous after the abdomen was opened, and I have it on the authority of a very skilled administrator of nitrous oxide that this struggling is by no means uncommon Personally I have managed appendicectomies gastro-enterostomies, prostatectomies cholecystostomies, cholecystectomies ovariotomies, and amputation through thigh and leg without any inhalation anæsthetic, but find it advisable to give a very little open ether along with the regional anæsthesia and narcotic in hysterectomies, big resections of bowel, and in renal operations If we inject novocaine solution well to the side of the abdomen between the ribs and ilium we get a vastly improved abdominal relaxation which permits of far more easy exploration of the abdomen, and consequently much less need of a general anæsthetic

For the semi isolated general practitioner doing surgery these methods are of great value but have to be seen to be understood and require a considerable amount of practice and the use of nitrous oxide and oxygen is rather a bar to their more universal adoption I must add a warning word about chloroform which Mr Lockhart Mummery says may be given—one has to use a certain amount of adrenalin with the novocaine, and I have seen one or two cases where I could not help thinking that the combination of adrenalin and chloroform had dangerous results—it may not be so but others have had the same experience as myself Colonel Gray's technique of injection is very different from that advised by Crile and Lower in their work on the subject and by allowing more time to elapse between the preparation and the attack achieved by infiltrating all layers of the abdominal wall prior to using a knife at all seems to me to be a sounder method though more difficult to achieve proficiency in I have no doubt that had Colonel Gray been still in civil practice we would have had by this time a very interesting résumé of his experience in this work on our bookshelves and we must remember that he was the pioneer of 'The Shockless Operation' in this country, and was working on these lines while many of us were students in his wards

I am Sir, yours faithfully

W MASON FERGUSON

Banff July 2nd 1916

ATROPA BELLADONNA

To the Editor of THE LANCET

SIR,—My attention has just been called to an annotation on the Cultivation of Medicinal Herbs which appeared in THE LANCET on June 17th in which the passage occurs "Belladonna is a weed in this country." I am inclined to think this must refer to the woody nightshade (Solanum dulcamara), and not to the official plant. Atropa belladonna does grow wild but not to a very large extent; a mature plant is shrub-like, 4 to 5 feet high, with as many as 20 stout stems to a root. The matter was referred to in the *Daily Mail* of June 10th and my name mentioned as a grower of belladonna; in consequence I have received many hundred specimens for identification, only about 1 per cent. of which were belladonna, and nearly all the remainder the woody nightshade. We have not nearly sufficient belladonna in this country for our national requirements, but with foxglove the case is different—there is abundant—but frequently growing in remote districts making the picking and transport to manufacturers difficult. Systematic cultivation of both these plants will greatly lessen the cost and at the same time make us independent of foreign supplies.

I am, Sir, yours faithfully,

J. BEETHAM WILSON.

90, High-street, Dorking, July 6th, 1916.

*** Our note of course referred to the official plant, which is a widely distributed wild plant on the chalk soils of the east and south of the country. We are aware that the public almost to a man believes that Solanum dulcamara is the belladonna of the Pharmacopœia. In referring to belladonna as "a weed" we did not mean to imply that it was very common, but that where it occurred it grew without cultivation.—ED. L.

"PIRATE" DOCTORS

To the Editor of THE LANCET

SIR,—Permit me to correct a few inaccuracies in your correspondent's letter of July 1st headed "'Pirate' Doctors" in which I am personally accused of attacking doctors for demanding what he alleges are reasonable fees. This is the direct opposite to what my letter of June 12th states. I there stated that thanks to the loyal help afforded by the majority of those acting as locums, the demand had been so far met at reasonable fees, and that the demands of the very small minority, with whom your correspondent associates himself, could soon be stopped by refusing to pay their demands.

Surely in such times as the present no one with any patriotism would for a moment suggest that the time is ripe for the profession to raise their fees by the 150 per cent. your correspondent hints at. I have yet to learn that those who have so nobly given up their practices and joined the Royal Army Medical Corps to help their suffering fellow-countrymen are receiving, as he alleges, £2 or £4 per day. In my ignorance I understood the remuneration was usually 24*s.* a day or about the same as paid to a locum tenens, except that the latter has no outgoings to pay and runs no risks. May I also remind your correspondent that within my recollection locum tenens fees were £2 2*s.* to £3 3*s.* a week, and therefore the present fee of £7 7*s.* which he considers inadequate is an increase of over 200 per cent.

Once again may I thank the large majority of locum tenens and others who are loyally trying to keep together the practices of those who have joined the Royal Army Medical Corps.—I am, Sir, yours faithfully,

PERCIVAL TURNER.

Maiden-street, Adelphi, W.C., July 11th, 1916.

CHELSEA HOSPITAL FOR WOMEN.—The new building of the Chelsea Hospital for Women in Arthur street were formally opened by the Queen on Tuesday last. The hospital was established in 1871 in the Fulham road and its useful work has long been hampered by inadequate accommodation especially in the out-patient department. There were formerly 50 beds for in-patients, and accommodation is now to be provided for 80. A sum of £30,000 is still required to complete the building scheme.

The War.

THE CASUALTY LIST

THE following names of medical officers appear among the casualties announced since our last issue:—

Killed

Captain H. C. Mulkern, R.A.M.C., received his medical education at St. Mary's Hospital, London, and qualified in 1905. When war broke out he was a surgeon at the Kingston Barracks Military Hospital, and joined the R.A.M.C. in December, 1914.

Lieutenant D. Rodger, R.A.M.C., qualified in 1907 at Manchester, and took the F.R.C.S. Edin. in 1912. Proceeding to Australia he became Ophthalmic Inspector of Schools to the Queensland Government, and relinquished the appointment to take up war work, joining the R.A.M.C. in December, 1915.

Died of Wounds

Lieutenant E. C. Lambert, R.A.M.C., attached to the East Surrey Regiment, received his medical education at Westminster Hospital, and qualified in 1898. He had held appointments at Banstead, Darenth, and Hanwell Asylums, and prior to joining the R.A.M.C. in December, 1915, was assistant medical officer at Wandsworth workhouse.

Died

Lieutenant-Colonel C. Monk, I.M.S., qualified in 1874, and was for some time surgeon at the Military Hospital, Seimiya. He was in retirement when the war broke out, and died after an operation at the 2nd London General Hospital, of which he was lieutenant-colonel in charge.

Captain A. Seabrooke, R.A.M.C., was educated at Cambridge and at Guy's Hospital, qualifying in 1912, and was in practice in Grays, Essex, before joining the R.A.M.C.

Wounded

Lieutenant A. C. Taylor, R.A.M.C.

Captain H. B. Goulding, R.A.M.C., attached to the Seaforth Highlanders.

Lieutenant P. H. Macdonald, R.A.M.C., attached to the Sherwood Foresters.

Captain A. Hamilton, R.A.M.C., attached to the West Yorks Regiment.

Captain W. K. A. Richards, R.A.M.C.

Captain J. H. Glover, R.A.M.C.

Captain J. H. Tomlinson, R.A.M.C.

Captain R. Dearsley, New Zealand Medical Corps.

Captain G. D. Fairley, R.A.M.C., attached to the Royal Scots Fusiliers.

Lieutenant J. R. Hall, R.A.M.C.

Lieutenant J. K. Muir, R.A.M.C., attached to the Northumberland Fusiliers.

Missing, believed Killed

Captain J. L. Green, R.A.M.C., attached to the Sherwood Foresters.

Previously Reported believed taken Prisoners at Kut el Amara, now reported not Prisoners of War

Brevet-Lieutenant-Colonel S. Anderson, I.M.S.

Captain F. H. Salisbury, I.M.S.

THE NAVAL BATTLE OF JUTLAND, MAY 31ST, 1916

In the despatch received from Admiral Sir John Jellicoe, Commander in Chief of the Grand Fleet, and the subsidiary despatch of Vice-Admiral Sir David Beatty, the following references to medical operations occur:—

The work of the medical officers of the Fleet carried out very largely under the most difficult conditions, was entirely admirable and invaluable. Lacking in many cases all the essentials for performing critical operations, and with their staff seriously depleted by casualties, they worked unstintingly and with the greatest success. To them we owe a deep debt of gratitude.

Exceptional skill was displayed by the medical officers of the Fleet. They performed operations and tended the wounded under conditions of extreme difficulty. In some cases their staff was seriously depleted by casualties and the inevitable lack of such essentials as adequate light, hot water, &c., in ships damaged by shell fire, tried their skill, resource and physical endurance to the utmost.

HUDDERSFIELD WAR HOSPITAL MAGAZINE.—This is an addition to the journals published by several of our war hospitals and like its contemporaries will devote its profits to extra comforts for the sick and wounded. Among the contents of No. 1, the July issue, is the first instalment of extracts taken from a diary recording the story of the retreat from Mons. Major E. G. Coward is the editor, and the price is 2*d.* monthly.

OBITUARY OF THE WAR

JOHN GLADSTONE MACKENZIE, M B, CH B GLASG,

CAPTAIN, AUSTRALIAN ARMY MEDICAL CORPS

Captain J G Mackenzie, who was killed on active service in France on May 21st, was the son of Mr John Mackenzie, formerly resident in Lanarkshire, Scotland, and now in Victoria, Australia He graduated in medicine at Glasgow University in 1910 and then settled in practice at Wonthaggi, in Victoria, where, his brother tells us, he became an extremely popular practitioner In August, 1915, he joined the Australian Army Medical Corps, becoming attached to the 8th Field Ambulance and was transferred later to another section in France He was killed by a shell which exploded at his feet near to his dressing station, and death was practically instantaneous His commanding officer writes of Captain Mackenzie that he had "proved himself a very efficient soldier and an unusually well qualified medical officer also," adding that his name "had appeared on the day of his death in Orders as being detailed for special instructional duties regarding protection against asphyxiating gases"

DOUGLAS WATERSTON, B A., M D, C M MCGILL,

CAPTAIN, CANADIAN ARMY MEDICAL CORPS

Captain D Waterston, of the Canadian Field Ambulance, C E F, who was killed in action in Flanders on May 22nd was the youngest son of Mr and Mrs Thomas Waterston, of Montreal, Quebec, and was born at Belleville Ontario Canada on June 18th, 1889 He was educated at Belleville High School, and entered McGill University in 1905, taking his B A in 1909 with first-class honours in biology and his degree in medicine in 1914 During his course in arts he contracted tuberculosis and spent parts of 1909 and 1910 at Saranac Lake, New York State, where he happily made a good recovery After graduation he was appointed interne to the Montreal General Hospital holding this position until January, 1916 when he entered the Army Medical Service as Captain in a Canadian Field Ambulance then being raised in Montreal While on the resident staff of the hospital he qualified for a commission in the C A M C and received leave of absence to act as medical officer to the Mobilisation Camp at Three Rivers Quebec during the summer of 1915

We learn from one of the physicians to the Montreal General Hospital that Captain Waterston was held in high esteem by his associates and by the visiting staff of the hospital In entering his country's service he gave up the prospect of a brilliant career He is the first medical officer from Montreal to make the great sacrifice during this war

FREDERICK ALBERT CAPPS, L R C P EDIN,

FLEET SURGEON ROYAL NAVY

Fleet-Surgeon F A Capps, who was the senior medical officer on H M S *Defence* when sunk with all hands in the naval battle on May 31st was 50 years of age He was educated at Plymouth and Edinburgh, taking his medical qualification in 1890, and obtaining 22 years later the diploma of D P H with honours at the University of Ireland After a short period of private practice he entered the Navy in 1892 and saw varied service on the Australian station and at Gibraltar On promotion to staff surgeon in 1900 he was appointed to Haslar for the second time, and was later in medical charge of the training ship *Black Prince* and at the *Mercury* submarine depôt It was while here that he gained special experience in submarine life saving apparatus and himself contributed some valuable inventions He was promoted fleet-surgeon in 1908

Fleet-Surgeon R C Munday, editor of the *Royal Naval Medical Journal*, to whom we are indebted for part of this account of his friend writes of him "It was characteristic of this officer that whatever his hand found to do was carried out with energy and industry He never spared himself in his professional work yet he found time to become a very clever carpenter and was a good tennis player"

DEATHS AMONG THE SONS OF MEDICAL MEN

The following sons of medical men must be added to our lists of those who have fallen during the war —

Second Lieutenant H C Dalby, York and Lancaster Regiment eldest son of Major H E Dalby, R A M C of St Mary Church, Torquay

Captain R S Sweetnam, Royal Field Artillery, only child of Deputy Inspector General J L Sweetnam, R N of Worthing

Lieutenant R T Twining, Devonshire Regiment only son of Dr D O Twining of Salcombe South Devon

Captain W J Davis Northumberland Fusiliers second son of the late Dr R Davis, of Orpington Kent

Lieutenant K R Traill, Royal Berkshire Regiment younger son of Dr C G Traill of Sunningdale Berks

Lieutenant C Vaisey Royal Flying Corps, eldest son of Dr T F Vaisey, of Winslow Bucks

Second Lieutenant C V Beddow Devonshire Regiment second son of Dr J Beddow, of Thorverton Devon

Second Lieutenant J R L Hunt Sherwood Foresters only son of Dr J A Hunt, of Borrowash Derbyshire

Second Lieutenant J F Baddeley, The Buffs son of the late Dr C F Baddeley of Belvedere Kent

Lieutenant F G V Beard Worcestershire Regiment, eldest son of Dr F Beard, of Croydon Surrey

Lieutenant Colonel G A Royston Pigott D S O North amptonshire Regiment eldest son of the late Dr G W Royston Pigott F R S

Second Lieutenant W Harrison Gordon Highlanders only son of Dr J Harrison of Lesmahagow Lanarkshire

Colonel H C Bernard Indian Army attached to the Royal Irish Rifles only surviving son of the late Dr P Bernard Deputy General Inspector of Hospitals and Fleets and Honorary Surgeon to the Queen

Lieutenant D Rodger R A M C younger son of Dr P Rodger West Kirby, Cheshire

Second Lieutenant V C Brown South Staffordshire only [illegible] of the late Dr J Brown of Tring Herts

Lieutenant (temporary Captain) A Hodgkinson [illegible] Warwickshire Regiment youngest son of Dr Hodgkinson of Farnham

V Rien Middlesex Regiment fourth son of the late D C Rien of Woburn square London

Second Lieutenant J C M Stewart Royal Flying Corps eldest son of Dr J Stewart of Leeds

THE GERMAN OFFICIAL CASUALTY LIST

The editor of the *Queen* has pointed out to us the curious fact that the first four columns of figures as reported in the German Official Casualty Lists and issued on July 9th by the Press Bureau add up to an even number of hundred thousands The figures refer to the total casualties up to and including June, 1916 and are as follows —

Killed and died of wounds	710,892
Died of sickness	46,435
Prisoners	152,793
Missing	189,880
Total	1,100,000

As the chances are 99 999 to 1 against the result being a coincidence, we must conclude one of two things—either the total of 1,100,000 was a rough approximation in which case one of the four sets of figures presumably that of the missing was obtained by subtraction, or the German authorities were prepared as a matter of policy to admit the loss of 1 100,000 men, and arranged the figures to give this total The coincidence does not inspire confidence in the accuracy of the German official figures as a whole

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND—A meeting of the Fellows of the College was held on July 6th for the purpose of electing four Fellows to serve on the Council the President Sir Watson Cheyne being in the chair 654 votes were received by post and 6 Fellows voted personally, 7 voting papers arrived too late —

	Votes	Plumpers.
W F Haslam	353	24
Raymond Johnson	315	23
T H. Openshaw	282	33
V Warren Low	217	39
F J Steward	203	35
H S Pendlebury	177	21
J Murray	160	6

The President declared Mr Haslam, Mr Johnson, Mr Openshaw, and Mr Low elected, and stated that Mr Low would serve as substitute member in place of the late Mr Stanley Boyd The constitution of the Council is as follows Retiring in 1917 Mr W Harrison Cripps (first elected 1905) Sir W Watson Cheyne President (first elected 1897) and Mr Low Retiring in 1918 Mr Bilton Pollard, Sir J Bland Sutton and Mr W G Spencer Retiring in 1919 Sir Berkeley G A. Moynihan, Sir G H Makins (first elected 1903) and Mr L A Dunn Retiring in 1920 Mr D'Arcy Power Sir F S Eve and Sir Anthony Bowlby, K C M G Retiring in 1921 Mr J Ernest Lane Mr H. J Waring, and Mr F F Burghard Retiring in 1922 Mr C A Ballance M V O (first elected 1910) Mr W Thorburn and Mr W McAdam Eccles Retiring in 1923 Mr C Ryall, Mr Charters J Symonds and Mr H F Waterhouse

UNIVERSITY OF OXFORD—At examinations held recently the following candidates were successful —

DIPLOMA IN PUBLIC HEALTH

Part I—Isobel Mitchell

Part II—Elizabeth F Butler and Alan Ker Soutar

FIRST EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICINE.

Honours—[illegible] H [illegible] Burford Christ Church P B Dutton and R Gainsborough Magdalen T Patterson Non-collegiate W V Robinson New H W Toms Jesus and B Tenlow St John's

SECOND EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICINE.

Honours—[illegible] —C W W Armstrong and R M. Humphreys St John's I H Beattie, Corpus Christi E A Crook New W Gover and I T F D Roberts Balliol J J Savage Brasenose and G A Stone Trinity

Pass—C W W Armstrong and R M Humphreys St John's [illegible] Burrridge I B Hervey Wyatt and R W Lush Christ Church G R Cowie University W Gover W F Harvey and I T F D Roberts Balliol K A I Mackenzie Trinity and G H [illegible] Merton

Pass—[illegible] —F L. Appleby and L M Davies Lincoln I H Beattie Corpus Christi J N L. Blamey and T I Mickem New G A Bowen W Burrridge and N A Soro Christ Church J M H Campbell and G I Evans Magdalen W S Dawson Trinity G Jenkins Hertford and S C Varley S J [illegible]

Pass—[illegible] —J N L Blamey and T F [illegible] New J M H Campbell Magdalen W S Dawson Trinity G Jenkins Hertford and N A Soro Christ Church

EXAMINATION FOR THE DEGREE OF MASTER IN SURGERY

A. L. Leaver [illegible] Christ Church.

UNIVERSITY OF CAMBRIDGE—At examinations for medical and surgical degrees held recently the following candidates were successful —

FIRST EXAMINATION

Part I Chemistry—E G Holmes Christ's H A. A. Pargeter Sidney Sussex C L Pasricha Caius F Y Paton, Trinity and A. E Roche Magdalen.

Part II Physics—E G Holmes and A. E Slater Christ's J Lund, M A. Catharine H A. A. Pargeter Sidney Sussex C L. Pasricha Caius and A. E. Roche Magdalen

Part III Elementary Biology—E G Holmes Christ's A. Jephcott B.A. Queens J Lund Catharine H A. A Pargeter Sidney Sussex and C. L. Pasricha, Caius

SECOND EXAMINATION

Part I Human Anatomy and Physiology—C B Clarke Catharine F E G Hief and W H Palmer Sidney Sussex C A. Horder and T A. Jones Emmanuel T Menzies Annan Peterhouse W S Neave B.A. St John's J L. Potts Caius C E Taylor Trinity Hall D Wallace Clare and C H. Whittle, Queens

Part II Pharmacology and General Pathology—B F Armitage B.A., H Barbash W M Heald T L. Hillier S C Ho B.A. and R L. Williams St John's P F Bishop G E Burton B.A. and F C Odling B.A. Clare C V Braimbridge B A. and M S Thomson Downing E P Brockman E C Curwen A. C Halliwell A. T Hawley B A. Olphert H F Squire, B.A. and G H Ward B.A., Caius T A. Butcher B A J W McK. Nicholl B A. and E D Spackman B.A. Queens S P Castell and E G D Murray B A Christ's C B Cohen and J C Davies. B A. Trinity A. J Copeland B A C C R Downing J C N Harris B.A. F P N Parsons J P Wells and J M McC Wright, B.A. Pembroke G A. Fisher B.A. W S Gross B A P C Livingston and D W Winnicott Jesus A. G F McArthur B.A., R H Reece, and R H O B Robinson King's P M Neighbour B A. Sidney Sussex and N Rumboll and W S Sykes Emmanuel

THIRD EXAMINATION

Part I Surgery and Midwifery—E H. R Altounyan, E. A. Green B.A. and W T Warwick, B A. Emmanuel K. B Bellwood B.A. and A. Orr Ewing B.A. Pembroke W H Blackburn B A. Christ's C V Braimbridge, B.A. and R S Woods B.A. Downing W H W Cheyne, B.A. and H. W Featherstone B.A. Trinity E H Dendy B.A. L W Shelley B.A. W F T Haultain B A., and B H Swift, B A., Caius L. S Gathergood B.A. Sidney Sussex F E Higgins B.A. St John's J Rickman B A. and H. G E Williams, B.A. King's and H A. Whyte-Venables B.A. Queens

Part II—E. H R. Altounyan and W G A. Schüddekopf B A. Emmanuel K. B Bellwood, B A. and V C Pennell M.A., Pembroke S L. Bhatia, B A., Peterhouse H V Deakin B.A. Trinity E H Dendy B.A. W F T Haultain B A. and B H Swift B.A. Caius S H M Johns M.A., Clare J Rickman B.A. King's H. A. Whyte-Venables, B.A. Queens and R S Woods B A. Downing

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND—At the Second Professional Examination in Anatomy and Physiology held on June 29th and 30th and July 3rd, 47 candidates presented themselves, the following being successful —

Ernest Edwin Carter St Thomas's Hospital Henry Carter London Hospital Francis Cavers University College Arnold Edgar Collie Cambridge University and Middlesex Hospital Frederick Cyril Cozens Cambridge University and St Bartholomew's Hospital Idris Davies and William Davies University College Cardiff Reginald Stafford Foss St. Thomas's Hospital Edward Gallop St Bartholomew's Hospital Blanche Sutton Gardner London School of Medicine for Women Dennis Herbert Geffen University College Ralph Byron Gibson Sheffield University Boris Abramovich Morshovich Gordon and William Rufus George Harris London Hospital Charles Harold Sterne Horwitz, Guy's Hospital Arthur St George Joseph McCarthy Huggett and Gilbert Rasleigh Hull St Thomas's Hospital Santo Weisberg Jeger University College Cardiff Lolra Elwell Johnston American Medical Missionary College Simon Kelly Manchester University Mohamed Khalil Cairo and University College Reginald Cyril Bell Ledlie Guy's Hospital John Neil Leitch St. Bartholomew's Hospital Horace Sharman Le Marquand and Charles Dundas Maitland St Thomas's Hospital Ralph George Mayer Guy's Hospital Margaret Ombler Mees Cambridge and London School of Medicine for Women Gwilym Evan Morgan Oxford University and London Hospital Elizabeth Dill Russell London School of Medicine for Women Jivan Kumar Sanyal Calcutta Medical College and London Hospital Evelyn Cecil Whitehall-Cooke St Thomas's Hospital Idwal Glynne Williams St Bartholomew's Hospital Ethel Dorothy Willis Manchester University Julius Maurice Winnett London Hospital and Fuad Wanis Zaglama, Manchester University

SOCIETY OF APOTHECARIES OF LONDON—At examinations held recently the following candidates passed in the subjects indicated —

PRIMARY EXAMINATION PART II

Anatomy—P J Allison Manchester J G Barrie Guy's Hospital R A D J Bernhardt Middlesex Hospital W Breakell Cambridge J F E. Burns Bristol W H Cellier Guy's Hospital B A H Christmas Middlesex Hospital W F Gawne Liverpool W S Harell Bristol A M Horsley Cambridge G Hume Guy's Hospital; H Jennings Liverpool F C Jones Manchester G Maddison and W W Payne, Guy's Hospital B W Rolley St. Mary's Hospital C H S John Guy's Hospital E R. Sara and J A. P Shaw Cambridge and T C Stephen, Manchester

Physiology—P J Allison Manchester R. A. D J Bernhardt, Middlesex Hospital W Breakell Cambridge J F E Burns

Bristol W H Cellier Guy's Hospital, K R Chapple St Bartholomew's Hospital B Y H Christmas Middlesex Hospital D A Dyer King's College Hospital W F Gawne Liverpool J Gordon Leeds W S Hazell Bristol A M Horsey Cambridge G Hume Guy's Hospital H Jennings Liverpool F C Jones Manchester N H Kettlewell Bristol G Massie and W W Payne Guy's Hospital B W Roffey St Mary's Hospital C H St John Guy's Hospital and J A. P Shaw Cambridge

PRIMARY EXAMINATION PART I

Biology—M Fox Royal Free Hospital N H Kettlewell Bristol and G R A de M Rudolf King's College
Chemistry—M Fox Royal Free Hospital F Lyth H Lyth and J A. Marriott Manchester G R A de M Rudolf King's College and G N P Wright Bristol
Materia Medica and Pharmacy—S Robinson Belfast and F A. Unwin King's College Hospital

UNIVERSITY OF GLASGOW—The following candidates have passed the examination for the degrees of Bachelor of Medicine (M B) and Bachelor of Surgery (Ch B) in the subjects indicated—B, botany, P, physics—

Gavin Haddow Boyd (B) William Brock (P) Joseph Dewar (B P) William Norman Duguid (B) Bruce Paterson Gardner (P) Thomas Gibson (B P) Charles Glen (B P) James Lorimer Halliday* (B P) David Russell Hamilton (B P) George Harvey (B, P) Wesley Cope Houldsworth (B P) William Livingstone Kennedy (B P) William Martin M Cash (B P) Thomas Simpson MacDonald (B P) Robert Kennedy M Dougall (P) James M Nair (B P) William Muir (B, P) George William Murray* (B P) James Nairne (B P) Malcolm Nicolson (B P) Alexander Hunter Rankin (B P) Thomas Gilfillan Rankine (B P) Donald Stewart (Partick) (B P) Alexander Symon (B P) Andrew Smith Taylor (B) Charles Noel Temple (B P) George Tudhope (B P) John Wyllie (B) and John Yule (B P)

* Distinction in Physics

UNIVERSITY OF ABERDEEN—The following degrees were conferred at the recent Graduation ceremony—

DEGREE OF DOCTOR OF MEDICINE (M D)

James Watt George Byres, and Alexander William Overbeck Wright

DEGREES OF BACHELOR OF MEDICINE (M B) AND BACHELOR OF SURGERY (CH B)

Robert James Clark *William Corner (second-class honours) Alexander Henderson Craig George Stewart Davidson George Ewen †Andrew Fowler Douglas Morrison Milne Fraser †Alexander Johnstone Gordon James Key Douglas Lyon †Alistair Cameron MacDonald (second-class honours) George Strathdee Mather John Archibald Nicholson Alexander Keith Robb †Douglas Somerville Scott Robert John Smith George Thomson, and William Duke Whamond

* Passed Fourth Professional Examination with much distinction
† Passed Fourth Professional Examination with distinction

The John Murray Medal and Scholarship and the Lyon Prize were awarded to Dr Arthur George Reid

METROPOLITAN HOSPITAL SUNDAY FUND—The following are among the amounts received at the Mansion House up to July 11th—

St Mark's North Audley street £1402 St Columba, Pont street £491 St Paul's Knightsbridge, £304 Holy Trinity Sloane-street £300 Essex Church Kensington £246 St Peter's Cranley gardens £166 St Mary in-the-Bottons £169 St Mark's Hamilton terrace £141 Holy Trinity Tulse-hill £139; Greek Church Bayswater £138 St. Stephen's Gloucester road £135 St Paul's Onslow-square £130 Emmanuel Wimbledon £123 Christ Church Gipsy hill £118 St Stephen's South Dulwich £117 St John's Presbyterian Church Forest Hill £111 St John's, Penge £110 St John's Bromley £108; Mr J A. Roberts £100 St John's Presbyterian Church Kensington and St Mark's Reigate £98 each St Peter's Bayswater £91 St Philip's Kensington £86 St Michael's Blackheath £85 Westminster Abbey £79 All Saints Ennismore-gardens £78; St Anne's Wandsworth £76 Highgate Presbyterian Church £74 St Luke's Hampstead £71 St. James's Piccadilly £70 Christ Church Lee £68 Chipping Barnet Parish Church St John's Putney and All Saints Highgate £62 each Hornchurch Parish Church and Regent's Park Chapel £60 each St John's Notting hill and St Nicholas, Chislehurst £57 each Christ Church Beckenham St James's West Hampstead and St Mark's Marylebone-road £56 each St James's Aldbrook £55 Union Chapel Islington £53 Messrs J H Savasseur and Co £52 10s and Kensington Congregational Church and Mr Norman McCorquodale £50 each.

The total available for distribution to date amounts to about £45 500

ANNUAL PROVINCIAL MEETING OF THE SOCIETY OF MEDICAL OFFICERS OF HEALTH—The annual provincial meeting of this society took place on July 1st at Hampton Court when a large number of members attended from all parts of the country Among those present were the President (Dr Francis J Allan, medical officer of health of the city of Westminster), Dr John Robertson medical officer of health of Birmingham (President-elect of the society for session 1916–17) Dr C W F Young county medical officer of health of Middlesex Mr H Beale Collins (Kingston) and Dr B C Stevens (Mortlake) A business meeting was held in the forenoon, after which a visit was paid to some of the works of the Metropolitan Water Board under the guidance of Alderman R Woolley Walden J P chairman of the Water Examination Committee Dr A C Houston Director of Water Examinations, and Mr W B Warburton Student A M I C E resident engineer at Hampton Dr Allan, in proposing a vote of thanks to the Water Board referred to the vast improvements which had been effected Fifty years ago London obtained its water from the Thames between London Bridge and Chelsea, and he remarked that an old guide book to London of the year 1856 described that part of the river as being at once our cistern and our sewer

MEDICO PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND—The annual meeting of this association will be held on July 27th at 11, Chandos street, Cavendish square, W, at 2 45 P M, when the following papers will be read "Mental Disabilities for War Service" by Sir George Savage, and "Functional Gastric Disturbance in the Soldier, by Captain Colin McDowall, R A M C

WOMEN MEDICAL STUDENTS AT CHARING CROSS HOSPITAL—We are informed by the Dean of Charing Cross Hospital Medical School that the council of the hospital have decided to admit women students to the medical school and hospital as a temporary measure They will be admitted on the same terms as men students and can enter either for the full course or for the final studies only

SPHAGNUM MOSS—At the last meeting of the Devon Education Committee a letter was read from the Devon Voluntary Aid Organisation asking that school children might be encouraged to gather sphagnum moss to be used as dressings for wounds It was stated that a large quantity was required as quickly as possible The committee decided to communicate with the local school authorities upon the subject

EDINBURGH ROYAL INFIRMARY—At a meeting of the managers of the Edinburgh Royal Infirmary held on July 3rd the following appointments were made—Resident physician Ernest O A Singer (final year student) to Professor Sir T R Fraser (for three months) Resident surgeon Ronald N MacKenzie (fourth year student) to Mr A A Scot Skirving (for six months) Clinical assistant Stanley E Crawford, M D (Pennsylvania University, U S A) to Dr Norman Walker (for six months)

EUGENICS EDUCATION SOCIETY—The Eugenics Education Society has been devoting considerable attention to the question of reducing the present penalisation of parenthood At the general council meeting held on July 6th at the Grafton Galleries the following resolutions were unanimously adopted, and will be brought to the notice of those in authority—

1 That it is desirable without affecting the total amount raised by income-tax from the nation to make changes in the incidence of the tax in order to decrease much further than has yet been done the heavy burden on parents with dependent children
2. That the best way of securing this adjustment would be to assess the total income of a family as a number of separate incomes the number bearing some relation to the number of persons the income has to support
3 That the Executive Committee be empowered to take such steps as may seem advisable to bring this resolution to the notice of the Government

Major Leonard Darwin, in his presidential address to the society, said that in the rebuilding of the nation after the war it will be far more important to strive to maintain the quality of the people than merely to increase their number A general increase in the population has already been advocated to fill the gaps made by the war whilst the poverty expected after the war has been made an argument for a decrease in the birth rate The density of the population results from a balancing of two opposing forces—the desire for marriage and the fear of the cost of maintaining a family As to why different standards of living are thus established in the different grades of society the obvious reason is that differences of wealth arise by chance and are maintained by the inheritance of property But there is another explanation Men of exceptional natural abilities are constantly being selected out of the poorer ranks whilst wastrels constantly keep falling down into them The natural qualities leading to success pass on from generation to generation and differences in the standard of living thus tend to be maintained The principal cause of the lower fertility associated with greater wealth is that as prosperity increases so do the pleasures which compete with marriage The efforts now made however aim at a transfer of wealth to the poor as a class and not to them individually, and such efforts are likely to increase the rate of multiplication of the classes affected We have no right to assume that the existing high fertility of those at the bottom of the social ladder will not increase in future No one is striving to weed out the unfit into a class apart or to make them multiply rapidly but this is the direction in which we now seem to be moving If so there exists a growing cancer in the body of the nation which ought to be cut out at all hazards Steps taken to increase the population are likely to be condemned as adding to the misery of the poor But such fears must not prevent us from advocating an increase in the rate of reproduction among st the fit

Obituary.

PAUL H RÖMER, M D MARBURG

Paul Römer died on March 30th of typhus contracted on the Eastern front in his fortieth year A native of Marburg, he spent most of his school and academic life there, and was one of von Behring's most trusted pupils His work was constant and of a very high order, and his numerous contributions to medical literature are all distinguished by the same thoroughness and exactness, the same clarity of aim and expression In this country Römer was best known as the author of a monograph on Epidemic Infantile Paralysis which has appeared in translation,[1] and which is a model of what a monograph should be In tuberculosis his work went far towards firmly establishing the thesis that the majority of the human race by means of repeated small infections in childhood acquires such an immunity that tuberculous infection of an adult from without becomes a rarity His friend, Hans Much, testifies[2] that Römer's life was as upright as his research work Both were of a type which will be sadly missed

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS

The Reports of Certifying Surgeons

Clause 8 of the Police &c (Miscellaneous Provisions) Bill deals with the abolition of investigations of accidents by certifying surgeons As amended in Committee by the House of Commons on Thursday, July 6th it runs thus "1 After the expiration of one month from the passing of this Act it shall cease to be the duty of certifying surgeons to investigate the nature and cause of death or injury caused by accidents in factories and workshops or in premises to which the provisions of the Factory and Workshop Acts, 1901 to 1911, relating to accidents, are applied, or to send to the inspector of the district reports thereof, provided that nothing in this section shall affect Subsection (3) of Section 73 of the Factory and Workshop Act, 1901 relating to the investigation by certifying surgeons of diseases occurring in factories and workshops Provided also that it shall continue to be the duty of the certifying surgeon to investigate and report upon cases of injury caused by exposure to gas, fumes, or other noxious substances, or due to any other special cause specified in instructions of the Secretary of State as requiring investigation It shall also be the duty of the certifying surgeon to investigate and report upon any case of injury which the district inspector of a factory in pursuance of any general or special instructions from the Secretary of State may refer to him for that purpose and the Secretary of State shall issue instructions defining the causes of injury to which this provision is to apply and requiring the inspector of the district to refer to the certifying surgeon all such cases reported to him The certifying surgeon shall have, for the purpose of the investigation in any such case, the same powers and shall be entitled to receive the same fee as he would if the case had been a case to which Section 73 applies 2 As from the same date the enactments mentioned in the Schedule to this Act shall be repealed to the extent mentioned in the Schedule to this Act"

The presence of the original clause in the Bill led to very considerable debate on the second reading The Home Secretary was then urged by a considerable number of Members to consent to the deletion of the clause, and he promised to bring forward an amendment to modify its provisions That amendment has been introduced into the clause as set out above It begins "Provided also that it shall continue to be the duty of the certifying surgeon" and extends down to "the same fee as he would if the case had been a case to which Section 73 applies" The ground covered by the discussion ranging round this amendment was in the main that covered in the debate on the second reading Very considerable objection was taken to the clause particularly as it stood in its original form

Sir P MAGNUS during the debate in Committee said that the saving in money which the clause would bring about would only be £5000 or £6000 and it was not worth while to insert it in the Bill He criticised the qualifications of inspectors of factories and said that it was the certifying surgeon who alone possessed the scientific knowledge to judge questions relating to machinery and to mechanical, physical, and even chemical processes It would be disastrous to the interests of the workpeople that the report should depend on the inspector only without the advantage of the consideration given by the certifying surgeon

Mr TYSON WILSON advocated dropping the whole clause The workpeople who would be affected believed that the abolition of the certifying surgeons' reports would affect them prejudicially

Sir ROBERT FINLAY considered that it would be better to leave it to the discretion of the certifying surgeon as to what cases required a medical report Of course, if there were inspectors qualified by scientific knowledge to discharge the duties which were now discharged by the inspectors jointly with the certifying surgeons the evil might be mitigated, but it was very undesirable to abolish the reports of the certifying surgeons

Mr HERBERT SAMUEL (the Home Secretary) remarked that what had occurred did lead him a little bit to suspect that behind the scenes there must have been acting the very powerful organisation of the doctors which honourable Members knew was always ready to take active steps whenever their interests were in any way affected The report of the Accidents Committee showed that the portion of the certifying surgeons' work which it was proposed to abolish was superfluous, and that the reports in effect were duplicates All the factory inspectors were experts in mechanical safety appliances The certifying surgeon did not treat the injured workman He was not the man who examined him and diagnosed his case His work was to see the workman and send in one of those reports which were, as a rule, entirely useless The certifying surgeon had no power to take any action The Bill did not propose the abolition of the certifying surgeon The certifying surgeon would still continue to perform his most useful function of examining all young persons and children who were to enter a mill

Several honourable Members asked the Home Secretary to drop the clause Ultimately the right honourable gentleman's amendment in the form set out above was agreed to, and on a division the clause as amended was carried

The Bill was read a third time by the House of Commons

Cabinet Changes

Several changes in the Cabinet are announced Mr LLOYD GEORGE has become Secretary for War His place as Minister of Munitions has been taken by Mr MONTAGU Mr MCKINNON WOOD becomes Financial Secretary to the Treasury, and Mr TENNANT succeeds him as Secretary for Scotland

HOUSE OF COMMONS

WEDNESDAY, JULY 5TH

Medical Arrangements in Mesopotamia

Sir HENRY CRAIK asked the Secretary for India whether the report of Sir W Vincent and General Bingley upon the medical arrangements in connexion with the Mesopotamia expedition had yet been received, and, if so when it would be published —Mr CHAMBERLAIN replied The report has not yet been received

Mr ANNAN BRYCE asked the right honourable gentleman whether the sum of at least 16 lakhs of rupees was put by princes and other wealthy persons in India at the disposal of the Government of India for the purpose of a proper medical equipment of the expedition to Mesopotamia, if so, what portion of that sum was applied to such equipment, and what department or officer of the Indian Government was responsible for the expenditure or non-expenditure of the money —Mr CHAMBERLAIN answered No such gift has been reported to me by the Government of India Several Indian chiefs combined to present a hospital ship for the general purposes of the war, and some motor ambulances, motor-cars, and the like have been presented by individual donors or by communities for the troops in Mesopotamia

Inspectors of Factories

Sir P MAGNUS asked the Under Secretary for the Home Department what steps had been taken to give effect to the recommendations of the Committee on Accidents in Factories as to the examination to be passed by applicants for inspectorships and whether nominations for the inspectorate were now limited to the classes of persons suggested in the report —Mr BRACE replied The revision of the scheme of examination and conditions of nomination was being considered in consultation with the Civil Service Commissioners at the outbreak of war, and has had to be suspended for the time being Meanwhile no fresh appointments to the permanent staff are being made

The Health of Women Workers

Mr HASLAM asked the Parliamentary Secretary to the Ministry of Munitions whether he was aware that where women worked the 8 hour shift system with 30 or 40 minutes interval within the eight hours for refreshment it

[1] Epidemic Infantile Paralysis Trans'd by H Billey Pomfret M D Lond 8vo Bale S. and Danielsson 1913
[2] Deutsch med Wochr Nr 1910 No 23

say that he had been able to adopt, to a very large extent at all events, the recommendations of the Commission He desired to pay a tribute of gratitude on behalf of the Government and the House of Commons to the Commission for the splendid work which it had done There were no diseases which had done more injury to the life of the people and more destroyed their soundness than had venereal diseases Their consequences were terrible because these affected the succeeding generation Nothing was more horrible than to see little children who had inherited venereal disease He believed that if the recommendations of the Commission were followed consistently in the country a measure of relief would be given The Commission had suggested that there should be facilities for diagnosis and treatment, that these should be available for the whole population, that they should be free of access, and it was recommended that if the work was done through the local authorities 75 per cent of the cost should be found by the State. The Chancellor of the Exchequer had agreed that that grant should be given An announcement was made by him (Mr Long) to that effect, and schemes were coming into existence The counties and county boroughs were organising facilities in connexion with institutions The Local Government Board was issuing an Order, of which he had approved the other day, imposing this duty upon local authorities The measures which the Board was calling upon them to take were—(1) that there should be laboratory facilities for free diagnosis, (2) that there should be clinics at the general hospitals for treatment, and (3) that there should be a gratuitous supply of the great remedy, salvarsan He had seen in one of the London hospitals a ward set apart for the treatment of venereal disease and he earnestly hoped that all the great hospitals in the country would give their immediate aid in this work He knew that some of those responsible for hospitals entertained a fear lest the importation into their institutions of the treatment of this disease would injure the reputations of the hospitals It would do nothing of the kind It was only possible to deal with this fell disease satisfactorily if the provision was universal If patients had to go long distances in order to get hospital accommodation he was afraid that they would not go, and the remedies would not be available for them He was quite confident that there was no reason to fear that by offering facilities for the treatment of this disease any hospital in the country would suffer in credit or in the good opinion of those who supported it

Appeal for Public Coöperation

He invited the coöperation of local authorities, hospital authorities medical men and the public generally He hoped that there might also be coöperation on the part of ministers of religion throughout the country who could do a great deal to help in this beneficent work Naturally there was a feature attached to this disease which did not belong to ordinary troubles The patient did not like it to be known that he or she was suffering from it Patients wanted to conceal the fact Therefore if they were to be dealt with great care must be taken not only that there was proper provision for their treatment, but that everything that could be done was done to enable them to get it without unnecessary identification One of the conditions which he had endeavoured to establish in consequence of this was that it should not be considered essential that a person coming to a hospital for treatment should belong to the district which the hospital served He was requesting that questions should not be asked so as to identify the patients outside with the terrible misfortune that had overtaken them It was desired to cure them and to eradicate this horrible disease It could be done If the Government received the assistance of people of all classes he believed that the time was not very far distant when this disease might be added to those the permanent ill-effects of which had been eradicated by satisfactory treatment

Sanatoriums

Although there was a shortage of medical men there were to hand 200 sanatoriums and hospitals and 11 745 beds which had been provided for the treatment of tuberculosis in England There had also been 359 dispensaries provided and there was to-day sufficient accommodation for our present demands All soldiers and sailors suffering from tuberculosis could be provided for by those institutions Most of the women were insured persons and arrangements in their case were made through the Insurance Committees But there were many soldiers and sailors who were not insured and for them arrangements were made by the Local Government Board through the local authorities There were also special arrangements for the treatment of officers at the King Edward VII Sanatorium at Midhurst The Earl was not allowing his normal work in connexion with the health to fall behind although it was embarking on new fields of enterprise It was impossible to exaggerate the importance of the preventive work and of protecting women and children from the mortality which followed from preventable diseases Some of those diseases, if they were not actually traceable to, were undoubtedly aided and abetted by, overcrowding, insanitary conditions in the homes, and by many of those social evils which had existed through so many generations and of which he was sorry to say the solution was not yet in sight The Board had done its best to maintain the sanitary services On the whole the record which he was able to present was not unsatisfactory

Tribute to the Medical Profession

After the war there were many problems which would present themselves for immediate solution—the housing of the people, public works, and further health provision The Government had set up a Reconstruction Committee, and all these problems were under careful survey and examination The nation must realise that the health of the people was a matter of first consideration In some respects there was great room for improvement Throughout the last year or two there had been an immense amount of voluntary work on the part of people of all classes He desired to pay a special tribute to medical men throughout the country Insurance work had thrown upon them an immense burden of work A very large number of them had joined the Royal Army Medical Corps That diminished the number available for work at home Cheerfully and bravely had these men done their work Let anyone examine the diary of their day's work and see what they were accomplishing There was no grumbling The nation owed a special debt of gratitude to these men who were labouring in order that the population might be kept in good health None at home were doing more than they were at present

In the debate which followed general satisfaction was expressed with the statement made by the President of the Local Government Board

Appointments.

Successful applicants for vacancies Secretaries of Public Institutions and others possessing information suitable for this column are invited to forward to THE LANCET *Office directed to the Sub Editor not later than 9 o clock on the Thursday morning of each week such information for gratuitous publication*

BARROW G A. M R C S L R C P Lond. has been appointed Anæsthetist to the Manchester Royal Eye Hospital

BROMLEY L M B M.C Cantab F R C S Eng, Assistant Surgeon to Guy s Hospital

CONSTABLE, EVELYN A M B B S Durh, Surgical Registrar to the London Temperance Hospital

DORNFORD A. C L.S A Lond Certifying Surgeon under the Factory and Workshop Acts for the Faringdon District of the county of Berks

HACKETT J A W M B Ch B Edin *Certifying Surgeon under the* Factory and Workshop Acts for the Gainsborough District of the county of Lincoln

LLOYD J T M R C S L R C P Lond *Certifying* Surgeon under the Factory and Workshop Acts for the Tregaron District of the county of Cardigan

SCARBOROUGH HILDA M B B S Lond Assistant Resident Medical Officer at Queen Charlotte s Lying in Hospital

THOMPSON ROBERT BUSHER, M.B Ch B Vict Manch Acting Deputy Medical Officer of Health for the Brixham (Devon) Urban Council.

WOOD-BILL, NELSON F R.C S Edin M R C S., L.R.C P Lond., Deputy Medical Officer of Health for Tiverton (Devon)

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index)

When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor

BEDFORD COUNTY HOSPITAL.—House Surgeon unmarried Salary as arranged with board &c.

BIRMINGHAM AND MIDLAND EYE HOSPITAL, Church-street —Resident Surgeon Salary £200 per annum with board &c

BIRMINGHAM UNIVERSITY —Lecturer in Physiological Department Salary £200 per annum

BOLTON INFIRMARY AND DISPENSARY —Female Second House Surgeon Salary £200 per annum with board &c

BRITTON COUNTY BOROUGH ISOLATION HOSPITAL.—Resident Medical Officer Salary £250 per annum with board &c

BRISTOL GENERAL HOSPITAL.—House Physician Salary at rate of £175 per annum with board &c

BRISTOL ROYAL INFIRMARY —House Surgeons and House Physicians Salary at rate of £120 per annum with board &c

BURY INFIRMARY —Junior House Surgeon Salary £150 per annum with board &c

CHARTON COUNTY BOROUGH ISOLATION HOSPITAL.—Resident Medical Officer Salary at rate of £250 per annum with board &c

FRENCH WAR HOSPITAL.—Resident Medical Officer Salary as arranged

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST *Brompton* —House Physician for six months Salary 30 guineas

HULL VICTORIA HOSPITAL FOR SICK CHILDREN —Female House Surgeon Salary £100 per annum with board &c

was reported that better results both with regard to health and production, were obtained than under the 12 hour shift system whether there were now any industries under his control where women were allowed to work longer hours than were permitted under the Factory Acts, if so, would he immediately take steps to stop this practice, which was shown by the report of the health of munition workers to be detrimental to health and effective production, and whether all cases of overtime worked by women workers were reported to the Home Office and required the sanction of that department —Dr ADDISON said in reply It has generally been found that from the point of view of health a three shift system, where practicable, is preferable to a 12 hour shift system In a good many cases, however, the shortage of labour and difficulties of housing accommodation make a three shift system impracticable, and the system involves also certain difficulties of organisation On the other hand a two shift system where hours in each shift are not excessive is often quite satisfactory As regards the second part of the question, it has been decided in concurrence with the Home Office to bring the hours of work for women and young persons in controlled establishments generally within the weekly limit of 60 hours allowed under the ordinary provisions of the Factory Act, and steps are being taken to give effect to this decision Wherever an emergency necessitates any extension of hours the sanction of the Home Office is required

THURSDAY, JULY 6TH

Masseurs in Military Hospitals

Mr TYSON WILSON asked the Under Secretary for War whether he was aware that the members of the National Association of Trained Masseurs had made application for appointment as masseurs in military hospitals, and that although their qualifications were as good as those of persons who had been appointed their applications had been refused, and whether he would state why the War Office refused to avail itself of these fully trained masseurs —Mr TENNANT answered Appointments of masseurs in military hospitals are made without reference to the institute or association to which the individual applicant may happen to belong They are selected by an advisory committee consisting of masseurs matrons and medical men Certain qualifications have been laid down which each candidate must possess before appointment and no candidate is rejected if possessed of the necessary qualifications

MONDAY, JULY 10TH

The Notification of Anthrax

Answering Mr W THORNE, Mr LONG (President of the Local Government Board) said The question of issuing an Order making all cases of anthrax compulsorily notifiable is under consideration

British Prisoners at Ruhleben

Answering Mr MALCOLM, who asked whether any reply had been received from the German Government on the question of the treatment of British civilian prisoners at Ruhleben, Lord ROBERT CECIL (Under Secretary for Foreign Affairs) said The note of the German Government, which was despatched within the time limited by our note has now reached us It denies that insufficient food is being given to the prisoners, and while rejecting our proposal as to exchange makes another proposal on the subject His Majesty s Government are considering what reply shall be sent to it, and will communicate the German note and our reply to the House as soon as possible In the meantime we are asking for a further report on the conditions at Ruhleben

Cases of Insanity amongst Men of the Navy

Mr MACNAMARA (Secretary to the Admiralty) informed Mr HOHLER that men invalided from the Navy for insanity attributable to the service and in non attributable cases those with length of service of 10 years and upwards to their credit were irrespective of the cause of insanity sent to Yarmouth Hospital The former about 10 in all at present were borne on full pay for a period of 18 months from first entry in a Naval hospital In non attributable cases sent to Yarmouth pensions were not payable but the wives and children were granted small allowances out of Greenwich Hospital funds The total number of other Naval pensioners at present patients in public asylums was about 150 of whom about 15 were men discharged since the outbreak of war in any other institutions than military war hospitals under the control of the War Office

Lord HENRY CAVENDISH BENTINCK asked whether any soldiers invalided through loss of mental balance had been discharged from the Army to asylums other than the three classes which he gave notice that he intended to discharge—viz cases of general paralysis of the insane chronic epilepsy, and nervous disturbance occurring in soldiers who had been in asylums before they joined the Army, and if so how many —Mr FORSTER answered A limited number of cases which after a period of from four to six months observation and treatment are considered to be incurable have been discharged to asylums The number is 193

TUESDAY JULY 11TH

Public Health Work

In the course of his speech in Committee of Supply on the Estimates of the Local Government Board, Mr LONG (the President of the Board) made a statement on various matters referring to public health Dealing with the work of local Poor law authorities, he said that they had provided a large number of beds for wounded soldiers in their institutions Accommodation had also been provided by the local authorities for infectious diseases amongst soldiers One half of the medical staff at the Local Government Board had been engaged on war work The work upon which they had been specially employed had been visitation of camps and billets and the inspection of food both at home and abroad He had it from heads of the War Department that it was believed it was in no small degree due to the coöperation of the Local Government Board and the admirable services of officers of that department that it had been possible to maintain so high a standard of food for the soldiers. The Local Government Board had taken its part in the prevention of the spread of disease in the Army During the period of nearly two years when enormous numbers of men had been collected in certain areas there was too often no sanitary arrangement, but nevertheless the health of the country had been wonderfully maintained There had been a steady decrease in enteric fever Cerebro spinal fever, which at one time had caused a great deal of anxiety, was now practically causing the Board little or no anxiety Small pox which at one time caused some alarm in the country, had been satisfactorily dealt with There was no cause for anxiety now and this, he believed was due to the prompt action taken by medical officers of the Board No fewer than 3 000 000 tubes of lymph were supplied by the Board to the troops

Infant Welfare

Probably one of the most grave facts borne in upon honourable Members (the right honourable gentleman continued) was that the country was losing through the war many of the best and strongest of the male population Never was it more incumbent upon Parliament and the country than it was to-day to strain every nerve to see that the young members of the population were brought up so as to become healthy men and women. Probably there was nothing more important than work connected with the welfare of infants and of women both before and after the birth of their children The Board had done its best to get local authorities to adopt schemes Most local authorities had willingly coöperated Schemes had been adopted for safeguarding the health of expectant mothers nursing mothers and of infants and young children Nearly all the large urban districts had adopted these precautions The Notification of Births Act 1915 had already had very excellent effects and he believed that as time went on admirable results would follow from this important change in the law Grants had been made to local authorities Nine hundred health visitors had been appointed and there were also a great many voluntary societies interested in the work Nursing associations were doing admirable work and there had been visitation inspection and advice by the inspectors of the Local Government Board There had been a decrease in infantile mortality It had gone down to 110 per 1000 in 1915 and the first quarter of 1916 showed a much lower rate than the corresponding quarter of last year He thought that there had been a tendency for Government departments to take up work which really belonged to other departments and the result was overlapping The Local Government Board was a department which ought to be solely charged with the health of the country There should be no interference with the department

Mr WHITEHOUSE asked whether the right honourable gentleman thought that the medical inspection of school

say that he had been able to adopt to a very large extent at all events the recommendations of the Commission He desired to pay a tribute of gratitude on behalf of the Government and the House of Commons to the Commission for the splendid work which it had done There were no diseases which had done more injury to the life of the people and more destroyed their soundness than had venereal diseases. Their consequences were terrible because these affected the succeeding generation Nothing was more horrible than to see little children who had inherited venereal disease He believed that if the recommendations of the Commission were followed consistently in the country a measure of relief would be given The Commission had suggested that there should be facilities for diagnosis and treatment that these should be available for the whole population that they should be free of access, and it was recommended that if the work was done through the local authorities 75 per cent of the cost should be found by the State The Chancellor of the Exchequer had agreed that that grant should be given An announcement was made by him (Mr Long) to that effect, and schemes were coming into existence The counties and county boroughs were organising facilities in connexion with institutions The Local Government Board was issuing an Order of which he had approved the other day, imposing this duty upon local authorities The measures which the Board was calling upon them to take were—(1) that there should be laboratory facilities for free diagnosis, (2) that there should be clinics at the general hospitals for treatment and (3) that there should be a gratuitous supply of the great remedy salvarsan He had seen in one of the London hospitals a ward set apart for the treatment of venereal disease and he earnestly hoped that all the great hospitals in the country would give their immediate aid in this work He knew that some of those responsible for hospitals entertained a fear lest the importation into their institutions of the treatment of this disease would injure the reputations of the hospitals It would do nothing of the kind It was only possible to deal with this foul disease satisfactorily if the provision was universal If patients had to go long distances in order to get hospital accommodation he was afraid that they would not go, and the remedies would not be available for them He was quite confident that there was no reason to fear that by offering facilities for the treatment of this disease any hospital in the country would suffer in credit or in the good opinion of those who supported it

Appeal for Public Cooperation

He invited the cooperation of local authorities hospital authorities medical men and the public generally He hoped that there might also be cooperation on the part of ministers of religion throughout the country who could do a great deal to help in this beneficent work Naturally there was a feature attached to this disease which did not belong to ordinary troubles The patient did not like it to be known that he or she was suffering from it Patients wanted to conceal the fact Therefore if they were to be dealt with great care must be taken not only that there was proper provision for their treatment, but that everything that could be done was done to enable them to get it without unnecessary identification One of the conditions which he had endeavoured to establish in consequence of this was that it should not be considered essential that a person coming to a hospital for treatment should belong to the district which the hospital served He was requesting that questions should not be asked so as to identify the patients outside with the terrible misfortune that had overtaken them It was desired to cure them and to eradicate this horrible disease It could be done If the Government received the assistance of people of all classes he believed that the time was no very far distant when this disease might be added to those the permanent ill-effects of which had been eradicated by satisfactory treatment

Sanatoriums

Although there was a shortage of medical men there were to-day 201 sanatoriums and hospitals and 11 743 beds which had been provided for the treatment of tuberculosis in England There had also been 359 dispensaries provided and there was today sufficient accommodation for our [illegible] All soldiers and sailors suffering from tuberculosis could be provided for in those institutions [illegible] of the men were insured persons and arrangements in their case were made through the Insurance Committees [illegible] there were many soldiers and sailors who were not insured and for them arrangements were made by the Local Government Board through the local authorities There [illegible] Sanatorium at Midhurst The [illegible] allowing [illegible] work in connexion with [illegible] embarrassing [illegible] impossible [illegible] and of protecting women and children from the mortality which followed from preventable diseases Some of those diseases, if they were not actually traceable to were undoubtedly aided and abetted by, overcrowding, insanitary conditions in the homes, and by many of those social evils which had existed through so many generations and of which he was sorry to say the solution was not yet in sight The Board had done its best to maintain the sanitary services On the whole the record which he was able to present was not unsatisfactory

Tribute to the Medical Profession

After the war there were many problems which would present themselves for immediate solution—the housing of the people, public works, and further health provision The Government had set up a Reconstruction Committee, and all these problems were under careful survey and examination The nation must realise that the health of the people was a matter of first consideration In some respects there was great room for improvement Throughout the last year or two there had been an immense amount of voluntary work on the part of people of all classes He desired to pay a special tribute to medical men throughout the country Insurance work had thrown upon them an immense burden of work A very large number of them had joined the Royal Army Medical Corps That diminished the number available for work at home Cheerfully and bravely had these men done their work Let anyone examine the diary of their day's work and see what they were accomplishing There was no grumbling The nation owed a special debt of gratitude to these men who were labouring in order that the population might be kept in good health None at home were doing more than they were at present

In the debate which followed general satisfaction was expressed with the statement made by the President of the Local Government Board

Appointments.

Successful applicants for vacancies Secretaries of Public Institutions and others possessing information suitable for this column, are invited to forward to THE LANCET *Office directed to the Sub-Editor not later than 9 o'clock on the Thursday morning of each week such information for gratuitous publication.*

BARROW G A M R C S L R C P Lond has been appointed Anæsthetist to the Manchester Royal Eye Hospital

BROWLER L M B M C Cantab F R C S Eng Assistant Surgeon to Guy's Hospital

CONSTABLE, EVELYN A M B B S Durh, Surgical Registrar to the London Temperance Hospital

DORNFORD A C L S A Lond Certifying Surgeon under the Factory and Workshop Acts for the Faringdon District of the county of Berks

HACKETT J A W M B Ch B Bdin Certifying Surgeon under the Factory and Workshop Acts for the Gainsborough District of the county of Lincoln

LLOYD J T M R C S L R C P Lond Certifying Surgeon under the Factory and Workshop Acts for the Tregaron District of the county of Cardigan

SCARBOROUGH HILDA M B B S Lond Assistant Resident Medical Officer at Queen Charlotte's Lying in Hospital

THOMPSON ROBERT BUSHER, M B Ch B Vict Manch Acting Deputy Medical Officer of Health for the Brixham (Devon) Urban Council

WOOD-BILL NELSON F R C S Edin M R C S L R C P Lond Deputy Medical Officer of Health for Tiverton (Devon)

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index)

When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor

BEDFORD COUNTY HOSPITAL—House Surgeon unmarried. Salary as arranged with board &c.

BIRMINGHAM AND MIDLAND EYE HOSPITAL, Church-street—Resident Surgeon Salary £200 per annum with board &c

BIRMINGHAM UNIVERSITY—Lecturer in Physiological Department Salary £200 per annum

BOLTON INFIRMARY AND DISPENSARY—Female Second House Surgeon Salary £200 per annum with board &c

BRADFORD COUNTY BOROUGH ISOLATION HOSPITAL—Resident Medical Officer Salary £250 per annum with board &c

BRISTOL GENERAL HOSPITAL—House Physician Salary at rate of £175 per annum with board &c

BRISTOL ROYAL INFIRMARY—House Surgeon and House Physician Salary at rate of £110 per annum, with board &c

BURY INFIRMARY—Junior House Surgeon Salary £150 per annum with board, &c.

CHESTER COUNTY BOROUGH ISOLATION HOSPITAL—Assistant Medical Officer Salary at rate of £250 per annum with board &c

FELIXSTOWE WAR HOSPITAL—Resident Medical Officer Salary as arranged

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST Brompton—House Physician for six months Salary 50 guineas

HULL VICTORIA HOSPITAL FOR SICK CHILDREN—Female House Surgeon Salary £110 per annum with board &c

LEEDS PUBLIC DISPENSARY —Female Resident Medical Officer Salary £200 per annum with board &c.

LONDON TEMPERANCE HOSPITAL, Hampstead road N W —Assistant Resident Medical Officer for six months Salary at rate of £120 per annum with board &c Also Surgical Registrar Salary at rate of 40 guineas per annum

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN Park place Cheetham Hill road —Female House Surgeon Salary £120 per annum with board &c

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC Queen square Bloomsbury, W C —Junior House Physician Salary £100 per annum with board, &c

OXFORDSHIRE COUNTY COUNCIL —Tuberculosis Officer Salary £500 per annum

READING ROYAL BERKSHIRE HOSPITAL.—House Physician for six months Salary £250 per annum with board &c

ST MARK'S HOSPITAL FOR CANCER FISTULA AND OTHER DISEASES OF THE RECTUM City road E C —House Surgeon Salary £150 per annum with board &c

ST PETER'S HOSPITAL FOR STONE &c, Henrietta street Covent Garden W C —Junior House Surgeon for six months Salary at rate of £75 per annum with board &c

SCOTLAND NAVAL AUXILIARY HOSPITAL.—X Ray Operator and Anæsthetist Salary as arranged

YORK CITY —Temporary Tuberculosis Officer Salary at rate of £500 per annum

Births, Marriages, and Deaths.

BIRTHS

BOOTH —On July 3rd at Upper Richmond road S W the wife of Captain C H B Booth R A M C of a son

HARVEY —On July 9th at Dorset Lodge Merton Park the wife of Joseph Harvey M B, of a son

PERY —On July 6th at Botley Hants the wife of Alfred S Pery M R C S L R C P of a son

WRIGHT —On July 4th at Aldborough House Thaxted Essex the wife of Thomas Strethill Wright, M B temporary Captain R A M C, of a son

MARRIAGES

BRADBURN—RUBERY —On July 6th at St Michael's Church Rushall Surgeon Thomas Stratford Bradburn R.N to Mary Emmeline eldest daughter of John Tunner Rubery J P, and of Mrs Rubery The Limes Mellish road Walsall

DEVANE—KEOGH —On June 28th, at the Pro-Cathedral Dublin by the Rev R S Devane John Francis Devane M D F R C S D P H of Limerick to Vera daughter of Mr and Mrs Andrew J Keogh 6 Rutland square Dublin

DEATHS

TICEHURST —On July 7th at Huntbourne Tenterden Kent, Augustus Rowland Ticehurst, M R C S, L S.A. aged 70 years

N B —A fee of 5s is charged for the Insertion of Notices of Births Marriages and Deaths

BOOKS, ETC, RECEIVED

ARNOLD EDWARD London
Diagnosis of Nervous Diseases By Purves Stewart C B M D Edin F R C P Fourth edition Price 15s net

BALE JOHN SONS AND DANIELSSON London
Child Welfare Annual Edited by T N Kelynack Price 7s 6d net
Maintenance of Health in the Tropics By W J Simpson C M G M D F R C P Second edition Price 3s 6d net

CLARENDON PRESS Oxford London Edinburgh Glasgow New York Toronto Melbourne and Bombay and MILFORD HUMPHREY London at the Oxford University Press
Epidemics Resulting from Wars (Published under the Auspices of the Carnegie Endowment for International Peace Division of Economics and History) By Dr Friedrich Prinzing Edited by Harald Westergaard Professor of Political Science in the University of Copenhagen Price 7s 6d net

MACMILLAN AND CO London and New York
A Laboratory Course in Serum Study By Hans Zinsser M D J G Hopkins M D and Reuben Ottenberg M D Price 5s 6d net

SAMPSON LOW MARSTON AND CO London
European and other Race Origins By Herbert Bruce Hannay of the Inner Temple Barrister at Law Advocate of the High Court of Judicature Calcutta. Price 21s net

SAUNDERS W B COMPANY London
Post mortem Examinations By W S Walsworth M D Coroner's Physician of Philadelphia Price 25s net

METEOROLOGICAL READINGS

(Taken daily at 8.30 a.m. by Casella's Instruments)

THE LANCET Office July 12th 1916

Date	Barometer reduced to Sea Level and 32° F	Direction of Wind	Rainfall	Solar Radiation in Vacuo	Maximum Temp Shade	Min Temp	Wet Bulb	Dry Bulb	Remarks
July 6	29·[illegible]	W	0·34	92	65	55	56	61	Fine
7	29·5[illegible]	S W	0·27	120	68	53	50	58	Raining
8	29·5[illegible]	W	..	121	70	57	57	60	Cloudy
9	29·770	S W		119	70	52	57	52	Cloudy
10	29·700	S W	0·06	116	65	56	54	57	Overcast
11	30·0[illegible]	W	..	107	67	57	54	59	Cloudy
12	30·0[illegible]	S W		121	66	57	56	61	Fine

Notes, Short Comments, and Answers to Correspondents.

THE UNIFORM SYSTEM OF HOSPITAL ACCOUNTS

A UNIFORM system of keeping accounts has long been adopted by the principal British hospitals and by, amongst others, the Governments of Victoria Queensland, and New Zealand, with several Crown Colonies It is also in force at the principal hospitals in New South Wales, South Australia, Western Australia, Tasmania, and South Africa The system has not yet been adopted in the Dominion of Canada, possibly on account of the difference of currency By the use of the system expenditure at the various hospitals can be compared quite irrespective of their size for by a slight modification of some of the books used a cottage hospital of 50 beds or less can adopt the same bookkeeping method as a large hospital

A new edition of Sir Henry Burdett's book[1] has appeared at an opportune time, as new hospitals are being established all over the land It is of interest to note that the "Uniform System of Accounts" originated at the Queen's Hospital, Birmingham, in 1869 and was devised by the author with the cooperation of the late Mr William Laundy, a well known Birmingham accountant Six years later the system was introduced into the Seamen's Hospital at Greenwich, and was soon after adopted by a few of the larger hospitals The Metropolitan Hospital Sunday Fund then prescribed its use by the hospitals applying for grants and a revised form was recommended by the Saturday Fund and King Edward VII's Hospital Fund These three great hospital Funds now propose that the accounts of all institutions applying for grants from either of the three Funds should be audited and certified as correct by a chartered or incorporated accountant, who should be asked to satisfy himself that all the accounts are prepared and stated in accordance with the revised "Uniform System" Quite recently the Army Council has issued instructions that all hospitals run by the British Red Cross Society or by the Order of St John should have their accounts kept on the "Uniform System" Sir Henry Burdett's book has therefore become a semi official publication

WEIHAIWEI HEALTH REPORT

REPORTING on the affairs of Weihaiwei, the naval and military station in the province of Shantung leased to Great Britain by China in 1898, Sir J H Stewart Lockhart K.C M G, the British Commissioner, states that during 1915 the health of the territory was very satisfactory There were no cases of infectious disease reported except one case of paratyphoid from which a visitor suffered, and one case of measles One case of leprosy occurred which was received by Dr Fowler into his leper house at Hsiao kan The administration expresses its indebtedness to him for having received this patient and to Dr Wassel of the American Church Mission, who happened to be paying a visit to Weihaiwei, for having kindly escorted the patient to the Leper Home In the hospital at Port Edward 7[illegible]8 out patients and 266 in patients were treated making a total of 8074, as compared with 6770 in 1914 and 2407 in 1907 The number of operations performed was 356 as against 335 in 1914 and 15 in 1907 In the hospital at Wench'uant'ang 3825 new patients were seen as compared with 3923 in 1914 48 cases were treated as in patients and 24 cases were attended at their own homes In November the new hospital on the Island was opened and is a great improvement on the former building During the year 4530 vaccinations were performed The number of persons licensed to smoke opium on medical grounds was 38 (as compared with 27 in 1914) their average age being 62 5 years The number of convictions under the Ordinance prohibiting the smoking and importation of opium was 59 The highest temperature recorded at Port Edward during 1915 was 99° in July and the lowest 7 in January, rain or snow fell on 65 days the total fall for the year being 17 66 inches At Wench'uant'ang situated about 13 miles from Port Edward the highest temperature was 9[illegible] in July and the lowest 16 in January and February rain or snow fell on 84 days the total fall for the year being 20 29 inches

[1] The Uniform System of Accounts for Hospitals and Public Institutions Orphanages Mission Schools Homes Convalescent and Convalescent Classes of Institutions with Special Forms of Accounts Complete Set of Books Certain Suggested Checks upon Expenditure Forms Tender and other Alternatives for Economy Together with an Index of Classes of Institutions (whereby every item of expenditure may be found without reference to the heads by every group of Institutions) By Sir Henry Burdett K C B K C V O Fourth edition Revised and up to date London The Times Printing Office Limited 1916 Pp 122. Price 5s net

PUERPERAL FEVER IN THE SUDAN

THE report upon the research work of the Wellcome Tropical Research Laboratories at Khartoum during 1915, which is not published in full on account of war economy, contains a summary (*Tropical Diseases Bulletin*, vol vii, No 6) of an investigation by the director, Dr A. J Chalmers and Dr Alex. Marshall into the bacteriology of puerperal fever They found this to be in the Anglo Egyptian Sudan mostly a local uterine infection and not commonly a septicæmia Two causal organisms were *S saltvarius* and *S boris* (= *S borinus*, Broadhurst, 1915) The writers also found cases in which the causal organism was *S versatilis* Broadhurst, 1915 a member of the *fæcalis* group and another due to *S fæcalis*, Andrewes and Horder, 1906 The sources of infection appeared to be principally from human, equine, and bovine fæces the two latter being largely used in Khartoum and Omdurman as an application called "Zibla" which is applied to roofs and walls Cow dung is also used as a poultice by the natives

Messrs C and J—Sterile catgut is manufactured in Edinburgh by Messrs G F Marson and Co, 7, Meuse lane, South St Andrew street

Messrs B—The apparatus for chloroform anæsthesia in military practice described by Professor A. D Waller in THE LANCET of May 13th is made by Messrs Coxeter and Son, of 171, Pancras road, N W

The following magazines, journals &c., have been received —Science Progress Dublin Journal of Medical Science Tropical Diseases Bulletin Calcutta Medical Journal, St. Bartholomew's Hospital Journal Edinburgh Medical Journal Birmingham Medical Review Medical Review Review of Neurology and Psychiatry Archives of Radiology and Electrotherapy American Journal of Public Health Journal of State Medicine, Cleveland Medical Journal, British Journal of Tuberculosis

Medical Diary for the ensuing Week.

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street W

MEETINGS OF SECTIONS

Thursday July 20th.

DERMATOLOGY (Hon. Secretaries—A. M H Gray, J E R McDonagh): at 5 P M

Cases

Dr G Pernet (1) An Extensive Case of Lupus Vulgaris of Leg following a Tuberculous Abscess (2) Dermatitis Herpetiformis in a Boy (3) Multiple Lupus Vulgaris with Unusual Features in a Girl

Friday July 21st

SURGERY (Hon Secretaries—Raymond Johnson, V Warren Low): Special Meeting at 5 P M

Paper

Major Tait Mckenzie R.A.M C: The Treatment of Convalescent Soldiers by Physical Means (illustrated by lantern slides of cases under treatment)

Members of other Sections are cordially invited and the paper will have special interest for Members of the Sections of Balneology Electro-therapeutics and Neurology

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE West London Hospital, Hammersmith road W

MONDAY —2 P.M Medical and Surgical Clinics X Rays Mr Gray: Operations Mr B Harman: Diseases of the Eye. Dr Simson: Diseases of Women

TUESDAY —2 P M, Medical and Surgical Clinics X Rays Mr Baldwin: Operations Dr Banks Davis: Diseases of the Throat, Nose and Ear Dr Pernet: Diseases of the Skin.

WEDNESDAY —10 A.M Dr Saunders: Diseases of Children Dr Banks Davis: Operations of the Throat Nose and Ear 2 P M. Medical and Surgical Clinics X Rays Mr Pardoe: Operations Dr Simson: Diseases of Women

THURSDAY —2 P M. Medical and Surgical Clinics X Rays Mr Gray: Operations Mr B Harman: Diseases of the Eye.

FRIDAY —10 A.M., Dr Simson: Gynæcological Operations 2 P.M. Medical and Surgical Clinics X Rays Mr Baldwin: Operations. Dr Banks Davis: Diseases of the Throat, Nose and Ear Dr Pernet: Diseases of the Skin.

SATURDAY —10 A.M Dr Saunders: Diseases of Children Dr Banks Davis: Operations of the Throat, Nose and Ear Mr B Harman: Eye Operations 2 P M, Medical and Surgical Clinics X Rays Mr Pardoe: Operations

NORTH EAST LONDON POST GRADUATE COLLEGE Prince of Wales's General Hospital Tottenham N

MONDAY —Clinics:—10.30 A.M Surgical Out patients (Mr E Gilles) 2.30 P.M Medical Out patients (Dr T H Whipham): Gynæcological Out patients (Dr Bankier) 3 P M., Medical In patients (Dr R. M Leslie)

TUESDAY —2.30 P M Surgical Operations (Mr Carson) Clinics:—Medical Out patients (Dr A. G Auld) Surgical Out patients (Mr Howell Evans): Nose Throat and Ear Out patients (Mr C H Hayton) Radiography (Dr Metcalfe) 3.30 P M Medical In patients (Dr A J Whiting)

WEDNESDAY —Clinics:—2.30 P M., Throat Operations (Mr C H Hayton) Children Out-patients (Dr T R. Whipham) Eye Out patients (Mr R. P Brooks) Skin Out-patients (Dr R W Barber) 5.30 P.M. Eye Operations (Mr R. P Brooks)

THURSDAY —2.30 P.M. Gynæcological Operations (Dr A. E Giles) Clinics:—Medical Out-patients (Dr A. J Whiting): Surgical Out-patients (Mr Carson) Radiography (Dr Metcalfe) 3 P M, Medical In patients (Dr R M Leslie)

FRIDAY —2.30 P.M. Surgical Operations (Mr Howell Evans) Clinics:—Medical Out-patients (Dr A. G Auld): Surgical Out-patients (Mr E Gillespie), Eye Out-patients (Mr R. P Brooks)

THE THROAT HOSPITAL, Golden square W

MONDAY —5.15 P M Special Demonstration of Selected Cases
THURSDAY —5 15 P M. Clinical Lecture.

EDITORIAL NOTICES

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff It is urgently necessary that attention should be given to this notice

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office

Lectures, original articles, and reports should be written on one side of the paper only, *and when accompanied by blocks it is requested that the name of the author, and if possible of the article, should be written on the blocks to facilitate identification*

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication

We cannot prescribe or recommend practitioners

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor"

Letters relating to the publication, sale, and advertising departments of THE LANCET should be addressed "To the Manager

We cannot undertake to return MSS not used

MANAGER'S NOTICES

THE INDEX AND TITLE-PAGE TO THE LANCET

January to June, 1916

IN view of the Government restrictions upon the supply of paper, and the shortage of paper quite apart from these restrictions, the Index and the Title page to the volume of THE LANCET which was completed with the issue of June 24th have been printed separately, and copies have been supplied gratis to those subscribers who have up to July 13th, intimated to us their wish to receive them Other subscribers will be similarly supplied, so long as the stock remains unexhausted on application to the Manager THE LANCET Office, 423 Strand London, W C Such application should please be sent in at once

Volumes and Cases

VOLUMES for the first half of the year 1916 will be ready shortly Bound in cloth, gilt lettered, price 16s, carriage extra

Cases for binding the half year's numbers are now ready Cloth, gilt lettered, price 2s by post 2s 4d)

To be obtained on application to the Manager, accompanied by remittance

TO SUBSCRIBERS

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423 Strand London W C, are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c, should be sent to the Agent to whom the subscription is paid, and not to THE LANCET Offices

Subscribers by sending their subscriptions direct to THE LANCET Offices will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Friday mails to all parts of the world

TO COLONIAL AND FOREIGN SUBSCRIBERS

Subscribers abroad are particularly requested to note the rates of subscription given on page 4

The Manager will be pleased to forward copies direct from the Offices to places abroad at the rates shown, whatever be the weight of any of the copies so supplied

Communications, Letters, &c., have been received from—

A.—Dr W F Annand Coventry Ardath Tobacco Co Lond Anglo-French Drug Co Lond.; Messrs Allen and Hanburys Lond. Mr R J Albery Lond Mr G A Arnandin Lond Aymard Patent Milk Sterilizer Ipswich A. M E Aberdeen Public Library Librarian of Lieutenant-Colonel J A. Adami O.A.M.C Lond Aberdeen Secretary of the University Dr T L Ashforth Doncaster Mr H F Armstrong, Lond.

B—Dr H Beckett Overy Lond British Medical Association Lond Librarian of British Thomson Houston Co Lond Messrs Burroughs Wellcome and Co Lond. Bacteriological Laboratory Dublin Secretary of Messrs W H Bailey and Son Lond; Mr W L Blight, Cardiff British Red Cross Society Headquarters Collection Committee, Mr R Brooks King Taunton Dr A G Bagshaw Lond. Messrs Billings and Son Manchester British Science Guild Secretary of Fleet Surgeon R St. G L Bond R.N Dr B Worle Messrs T B Browne Lond. Dr W A Brend Lond. Mr W Blenkin, York Dr B F Board, Almora Mr J F Briscoe Southampton Mr H Bonis Thorold Ontario Captain G Blacker R.A.M.C Lond. D Edward Bigg Blagdon Dr N S Bonard Lond; Lieutenant Colonel E A Bourke B.E.F British Empire Union Hon Secretary of

C—Mr C E Clarke Hereford Messrs Carnrick and Co Lond Mr A K. A. Cæsar Crowthorne Dr Colmer, Yeovil Mrs Cowan Glasgow Crookes Collosol, Lond. Croydon County Borough Medical Officer of Health of Mrs H B Capps Christchurch Surgeon H Carlill R.N Margate Mr E R Cross Lond Child Welfare Enquiry Office Secretary of Captain A Compton R.A.M.C Weymouth Dr A J Chalmers Khartoum Messrs Coxeter and Son Lond

D—Messrs W Dawson and Sons Lond Dr Dupuy Versailles; Messrs J Dickinson and Co Lond. Messrs Down Bros Lond. Dr J F Devane Torquay Dr Sidney Davies Woolwich Messrs Duncan Flockhart and Co Edinburgh Sir Bryan Donkin Lond

E.—Captain T P Edwards R.A.M.C (T) France Dr W H Evans Cardiff Edinburgh Registrar General

F—Messrs Henry Frowde and Hodder and Stoughton Lond. F J B Dr Feltgen Dombasles Meurthe Fulton Manders Publishing Co Lond Mr E C Frere Lond Freemasons War Hospital Hon. Secretary of

G—Dr Michele Granato Riposto Captain E B Gunson R.A.M.C Lond Dr A. G Gibson Oxford Dr C D Green Bournemouth Guest Hospital Dudley Secretary of Messrs W Gimber and Son Lond. Glasgow University Registrar of Dr Major Green wood Lond Captain E Glynn, R.A.M.C Liverpool Glamorgan Red Cross Gazette Editor of

H.—Dr K R. C Halowes Cavan Messrs. Hirschfeld Bros Lond Mr H Hughes Penrhyndeudraeth Hoffman La Roche Chemical Works Lond. Captain A. J Hall R.A.M.C Sheffield Inquirer W D Halliburton Lond Mr W G Hill Lucan Huddersfield War Hospital Magazine Editor of Captain A. F Hernaman Johnson R.A.M.C Lond Dr T E Harwood Lond Dr Arthur Hawkins Ventnor; Dr A C Houston, Lond; Dr A. Howell Cardiff Captain T Houston R.A.M.C B.E.F Dr J T Hislop Wrexham.

J—Mr L Jablonski Paris Lieutenant E T Jones R.A.M.C The Johns Hopkins Hospital Library Baltimore Librarian of Captain David Johnston R.A.M.C Major A. D Jameson R.A.M.C; Dr J Hervey Jones, Standford Dingley

K.—Mrs R C Kelly Tipperary Dr E Kondoleón Athens Dr R Knox, Lond. Mr Lawrence Kellie, Lond.

L.—Dr A J Lim Bristol Messrs H K. Lewis and Co Lond Dr O G F Luhn Mirl Prof J N Langley Cambridge Messrs E and S Livingstone Edinburgh Lieutenant A. E Lundon R.A.M.C France Leeds Public Dispensary Secretary of

M—Dr A C McAllister Lond. Dr D G Middlemiss Settle Dr S E Moore Minneapolis Messrs Mable, Todd and Co Lond. Miss Martin Lond Sir Berkeley Moynihan, Leeds Major R McCarrison I.M.S Guildford M K Messrs C Mitchell and Co, Lond.; Messrs Maruzen Co Tokyo Dr Aziz Abdul Maquid Cairo Dr J McIntosh Lond; Captain P A. McCarthy R.A.M.C Messrs C Morgan and Co Lond Mr W Martindale, Lond Messrs Millington and Sheldrick Lond Mr W J Middleton Bournemouth Mr J McDonagh Lond Lieutenant Colonel C S Myers R.A.M.C B.E.F Captain J W McLeod R.A.M.C B.E.F Professor Rutherford Morison Newcastle on Tyne Medical Women's Federation Secretary of Mr H H Moyle Hentaridge Mr J L W Macalister Lond

N—Dr E F W Nixey Lond National Council for Combating Venereal Disease Secretary of Dr S L. Navaratnam Colombo Dr T G Nicholson Lond. Dr E Norton Folkestone New York Tribune Director of Bureau of Investigations

O—Dr H Oppenheimer Lond. Dr J S Owens Lond. Oxfordshire County Council Oxford Medical Officer of Health of Messrs Osborne Peacock Co Manchester Captain O Mea a Dr G Olano Lima.

P—Dr Herbert Peck Chesterfield; Dr J Parkinson Lond Dr H. Cooper Pattin Norwich Portsmouth Tuberculosis Dispensary Secretary of Dr A. G Phear Lond Captain A T Pitts R.A.M.C France Pedydffryn Sanatorium Penmaenmawr Secretary of Messrs Parke Davis and Co Lond Dr C T Parsons Lond.; Mr Giuseppe Principato Messina Mr C A Pannett Lond Mr W H Plows Lond.

Q—Queensland Government Statistician of

R.—Miss L. L Rogers Gloucester Dr J Regnault Turson Royal Society of Medicine Lond. Librarian of Royal Mineral Water Hospital Bath Registrar of Royal College of Physicians of Ireland Dublin Librarian of Royal United Service Institution Lond Librarian of Messrs. Ridout Whitstable Dr G A. Reid Southsea Dr H Rayner Lond. Royal Institute of Public Health Acting Secretary of Dr W C Rivers Barnsley R.M.S.P Secretary of

S—Dr J A Scott, Dublin Dr F E Smedley West Worthing Mr G Stewart, Shrewsbury St Peter's Hospital for Stone Lond Secretary of Sunderland Royal Infirmary Secretary of Mr A C Sterry Croydon Dr E W Scripture Lond South London Hospital for Women Secretary of Society of Trained Masseuses Editor of Journal of Society of Apothecaries of London Secretary of Miss L. Stacey Bournemouth Lieutenant Colonel E M Sympson R.A.M.C Lincoln Dr A Saudston New York Dr E H Snell Coventry Dr E I Spriggs Banff Dr J D Staples Lyme Regis Mrs Scharlieb M.D Lond Dr G E Shuttleworth Lond Dr F E Shipway Lond Dr R H Steen Dartford Mr A. H Straker Lond

T—Mr A. E Tayler Redditch Dr E F Travers Lond Dr E Maude Tindal Robertson Lond Messrs C Tayler and Co Lond; Mr T S Townsend Lond Messrs W Thacker and Co Lond Dr Seymour Taylor Lond; Surgeon Major Wm Taylor R.I.A. Lond Dr C H Thatcher Edinburgh Mr A Toms Lond Mr Percival Turner Lond Capt C H Treadgold R.A.M.C Tidworth Dr Walter Timme New York

U—University College Lond Provost of

W—Dr R P White Wigan W H S West Riding Asylum Kirkburton Clerk to the Messrs. R F White and Son Lond Messrs. Wm Whiteley Lond Messrs W Wood and Co New York Mr A. Wilson Lond Dr W H O Woods Worthing; West End Advertising Agency Lond Mr J B Wilson Dorking Mr T Waterston Westmount Montreal Dr J W Ainley Walker Oxford Dr F J Waldo Lond Mr J N Willoughby Lond

Y—Mr M Yearsley Lond

Z—Mr S C Zavitzianos Corfu.

Letters, each with enclosure, are also acknowledged from—

A—Dr W D Anderson Carlisle Messrs Armour and Co Lond Advertiser Sutton

B.—Mrs Aston Binns Great Malvern Dr A. Brown Hale Messrs Bedford and Co Lond Bolton Infirmary Secretary of Dr A. E Bartrum Bewdley Mr H Butterfield Northampton Mr E Blatchley Lond. Dr J L Bogle Atherston Mr Robt Bruce Milford-on-Sea Dr F A. Brooks Brighton Dr B B Basu Ranchi Lieutenant W M Buchanan Paisley British and Colonial Druggist, Lond.

C—Mr Hugo Conrad Lond Messrs Crossley and Co Lond Dr J B Christopherson Khartoum

D—Dr T L Drapes Chepstow Dr G Davies Kelman Peel Denver Chemical Manufacturing Co, Lond Mr R Davis Lond Mr W P Dester Turriff Dewsbury County Borough Accountant to the Devon and Cornwall Sanatorium Didworthy Medical Superintendent of Messrs Dowie and Marshall, Lond

E.—Mr F G Frost Lond East Suffolk and Ipswich Hospital Ipswich Secretary of E W S E M C

F—Messrs Fairchild Bros and Foster Lond Messrs Fannin and Co Dublin Fratelli Treves Genova

G—Dr J Geoghegan Grand Turk Messrs Gale and Co., Lond Messrs Gilyard Bros Bradford Mr J J Grace Lond G G W G W J

H.—Mr C T W Hirsch Lond., Messrs Hard and Land, Lond Mr J Smith Hill Aspenden Hertfordshire County Council Hertford Medical Officer of Health of H G Miss Harmer Wimbledon.

L—Mr H Ingleby Lond

J—Mr J C Jefferson Prestbiale J D B J A.

K—Mr F Kaiser Lond. Messrs King and King Pr[illegible]

L.—Dr T Laffan Cashel Messrs. Lee and Martin Birmingham London Temperance Nurses Co-operation Secretary of; Launceston (Tasmania) General Hospital House Steward of; Locum Lond L L

M—Mr S Mozumder Craghead Mr J J McConnell Moville Mr J McOscar Buxton Lieutenant W L Muir R.A.M.C Mrs Morison Lond Mentlo Hills Sanatorium Wells Secretary of Mr J. F Mackenzie Edinburgh

N—National Provident Institution Lond Secretary of; Messrs Neyroud and Sons Lond. Nurse Mill Hill

P—Dr H I Phillips Lond; Dr W P Pankridge Leicester Mr J Parrott Lond.

R.—Messrs J D Riedel Co Lond Dr J Reilly Lond Captain J Ramsay R.A.M.C(T) Dr I Barant Gravelines

S—Dr F T Stuppichl Bagdad Dr S Somasundram C[illegible] Mr W D Spanton Hastings Messrs W H Smith and Son Lond. Messrs W H Smith and Son Sheffield; Shaftesbury House Formly Secretary of Dr H Lyon Smith Lond Dr S H Stewart, Birmingham Messrs Spers and Pond Lond Messrs Savant Baker and Co Lond. Bandsman P[illegible] Lieutenant Stirling R[illegible] Infirmary Treasurer of

T—Mr F Thursby Lond Captain D C Thomas R.A.M.C [illegible] Dr Bethune T[illegible] Orangis Dr S J Johnson Taylor Norwich Captain J Tyler R.A.M.C [illegible]

V—Captain A B J Wilson I.A.M.C Vaccine

W—Dr Samuel Wright Lond W M L Dr Walter [illegible] Wigan Infirmary Secretary of Messrs J [illegible] Hull [illegible] Wright and [illegible] Birmingham Le[illegible] Lond

An Inquiry

INTO

HE CARDIAC DISABILITIES OF SOLDIERS ON ACTIVE SERVICE

By JOHN PARKINSON M D LOND M R C P LOND,

HEF ASSISTANT TO THE CARDIAC DEPARTMENT OF THE LONDON HOSPITAL TEMPORARY CAPTAIN R A M C ATTACHED HAMPSTEAD MILITARY HOSPITAL FOR HEART CASES

THIS paper records the result of an inquiry into the nous conditions which lead men on active service to port sick with symptoms suggesting heart disease It is ised on 90 cases seen as they passed through a casualty earing station with the British Expeditionary Force in rance From March 1915 to January 1916, every patient nt to my wards from a field ambulance with the diagnosis heart disease or disorder was investigated There was no lection no patient so referred was rejected as unsuitable, ns the series is consecutive During a large part of this nod the clearing station was in reserve hence the mber seen gives no indication of the frequency of these sabilities or of their proportion to the total sick Disvantages in this inquiry were the short period of observa on usually two or three days and the absence of special eans of investigation It was however an advantage to e the men so shortly after they had reported sick

METHOD OF INVESTIGATION

A detailed history of the patient was first obtained o es on infections recent and remote were followed by an ccount of his capacity for exertion at school and at work. fter enlistment the effects of training and of campaigning ere noted then the immediate reasons for his reporting ck. It was found that about an hour was necessary to btain a satisfactory history large in the man s own words ed without the use of leading questions

On examination attention was directed to the patient s neral condition and temperament The position of the pex beat with the patient recumbent was used as a guide the size of the heart A standard amount of exertion rved as a test for the functional efficiency of the heart

A NON CARDIAC CONDITIONS (22 Cases)

When the difficulties of field ambulance work are con dered it is no surprising to find that in a number of patients the symptoms were due to other than heart disease here were 22 among the 90 cases in whom other ssases were demonstrable Of these 2 had acute and chronic nephritis 1 anemia and 1 chronic bronchitis One patient had an enlarged thyroid gland with tachycardia another had a goitre without symptoms of thyrotoxicosis though he complained of a choking feeling on the march three cases were sent as D A H (disordered action of the heart) because of syncope alone and 3 other because they showed an unusual degree of normal sinus arrhythmia The 7 remaining cases were considered respectively examples of pulmonary tuberculosis atheromatous chronic bronchitis immaturity debility epistaxis and lymphatic asthma

B VALVULAR DISEASE (22 Cases)

Among the 90 cases valvular disease was present in 23 of these 8 had mitral incompetence 5 mitral stenosis 8 mitral incompetence 1 aortic stenosis and 2 acquired pulmonary stenosis (the mitral history thrill a pulmonary area) One patient had aortic and mitral incompetence and two patients mitral stenosis was doubtful For convenience a case of thoracic aneurism and one of dextrocardia are included in this series of 23 In 16 cases there was a history of acute rheumatism In 18 the chief symptom was shortness of breath in 8 it was pain all cases with pain had also shortness of breath Palpitation was an important symptom in half the cases Fifteen patients of the 8 had acute pericarditis complained of sudden or gradual failure Syncope had occurred in one case of mitral stenosis and in one of pulmonary stenosis Two patients complained of great exhaustion on the march and two of weakness of the legs on exertion The symptoms were provoked by doubling and marching and in 25 cases they had been present before enlistment One man of 40 with a to-and fro ('bellows') murmur at the aortic area yet without displacement of the apex beat had served 16 months including six at trench work in France He had no symptom whatever and the aortic incompetence was discovered at a chance examination

C SO-CALLED SOLDIER'S HEART (40 Cases).

(1) Etiology; (2) Symptoms, (3) Physical signs, (4) Exertion test, (5) After-history, (6) Nature of the condition, and (7) Conclusions

After dismissing briefly the cases with non cardiac conditions and those with valvular disease, there remain 40 patients to be considered more closely They were men who complained of cardiac symptoms, especially breathlessness and precordial pain but in whom no physical sign of heart disease could be found In the Army Medical Service they would be classified under D A H, and in medical literature they have been referred to as "soldier's heart The terms irritable heart and "heart strain' have been employed but their use is open to criticism These 40 cases are summarised at the end of this paper, the full notes on them are the foundation for the following statements on the etiology, symptoms and signs of this group of patients and for the subsequent discussion on the nature of the condition

Etiology

Age—The average age of these patients was 30 years Of men between the years 17 and 20 there were 6 between 21 and 30 17, between 31 and 40 9, and between 41 and 50 8 One patient aged 51. was the only man above 45 years of age

1. *Infections*—(*a*) Before enlistment Four patients gave a history of acute rheumatism and 3 of them had symptoms before enlistment (Cases 11, 18 and 19) Two men (Cases 13 and 16) had contracted enteric fever during the South African War 2 gave a history of pneumonia, and 2 of pyrexia of unknown origin (Cases 3 and 24). The following infections had occurred each in one case syphilis dysentery repeated colds (Cases 21 4 and 6) Thus in 12 out of 40 cases there was a history of an infection which may have been the cause, and 8 of these had symptoms before the war In addition 7 patients said they had scarlet fever in childhood though none diphtheria. (*b*) After enlistment In 5 patients previously healthy, cardiac symptoms followed immediately upon an illness during military service. In 2 of them (Cases 9 and 10) influenza preceded an attack of angina pectoris, in the remaining 3 symptoms appeared after trench feet and lumbago (Case 25) lumbago (Case 33) and pains in back and joints (Case 23)

2. *Tobacco*—Two men admitted that they were heavy smokers Sixteen smoked cigarettes and claimed to be moderate (5-10 a day) Ten smoked a pipe (1-3 oz. weekly) rarely cigarettes Four smoked little, not more than one or two cigarettes a day and 1 was a non smoker (Case 23) In 7 there is no note as to smoking It is noteworthy that about half the cases either smoked a pipe or were very light smokers

3. *Alcohol*—Ten patients were total abstainers, three had been rather heavy beer drinkers before they left England or as usual had taken less in France The remainder may be considered moderate drinkers

4. *Rheumatism*—Among 40 cases only 4 gave a history attributing the onset of symptoms to a particular exertion Case 3 first noticed precordial pain after marching several miles with a full pack on a hot day, it recurred on subsequent moderate exertion Eighteen months before he had been confined to bed for five weeks with influenza. Cases 9 and 10 suffered from an attack of angina pectoris during exertion but each had since returned to duty after "influenza." Case 23 experienced no symptoms until subjected to an unusually severe trench raid and then sight breathlessness and pain preceded by three weeks the sudden onset of severe pain while carrying a heavy weight.

5. *Physical condition*—In two only among the whole 90 patients was there evidence of enlargement of the thyroid gland these are included above in the non-cardiac series No one of the patients considered as "soldier's heart" showed any enlargement of the gland or any other signs or symptoms which, combined, would justify a diagnosis of hyperthyroidism

Symptoms

An unexpected result of inquiries into the medical history of patients before enlistment was the frequency with which similar symptoms had been present for years before the war This was true of no less than 29 of the 40 cases In support of their assertion is the fact that 24 of these had symptoms as soon as they began to train, the remaining 5 had little or no training Seven had been compelled to obtain lighter civil employment because of their disability If we except 9 men whose symptoms had only been slight before enlistment ("always short-winded") there remain 20 out of 40 exactly half the cases, who had had on exertion definite shortness of breath palpitation, or pain before they joined the Army

That the symptoms arose from the heart can scarcely be questioned The dependence of the breathlessness and pain upon exertion and the frequency of precordial pain are characteristic The symptoms are identical with those shown in valvular disease

In all cases shortness of breath was induced by exertion and was absent during rest except in Cases 11 and 21 Under training doubling was almost invariably mentioned as the source of greatest difficulty, indeed, many were excused doubling on this account Marching produced shortness of breath or precordial pain Several complained of symptoms when marching to and from the trenches, but said they felt well enough while in them Among mounted men, riding at a moderate pace was tolerated, but trotting invariably induced their symptoms In 4 cases the excitement of shell fire provoked palpitation or giddiness (Case 25), præcordial pain (Case 35) and palpitation (Cases 33 and 36)

(*a*) *Shortness of breath* —This was present on exertion in every case except one (Case 3)

(*b*) *Pain* —Pain had occurred in 24 cases—i e, more than half, in 6 it was severe, in 14 moderate, and in 4 it was slight With one exception (Case 3), all patients with pain had also some breathlessness on exertion Needless to say, the patient's own diagnosis of pain over the heart was not accepted without criticism He was asked to point to the site and this is indicated in the summarised histories The pain was usually of an aching character, with more severe exertion it became sharp It was limited to the region of the apex beat in 8 cases to the fourth left space (anteriorly) in 3, and to the fifth space in 2 In 4 patients the pain occurred in a larger area including the third, fourth and fifth spaces Three men described severe pain with extension down the left arm which might permit its description as *angina pectoris* (Cases 9 10 and 11) Of a different character was the pain in Cases 28 29 and 38, who felt a gripping sensation across the lower half of the front of the chest as the result of effort Cases 26 and 28 complained of a "weak feeling" in the left breast and left arm respectively, and Case 7 of cramp in the left arm In two patients the pain was felt at the left costal margin and may not have been cardiac

(*c*) *Palpitation* —This was one of the complaints in 26 of the 40 cases and a prominent one in 9 cases (Cases 32–40) Nine felt it during exertion 9 others particularly on excitement but also on exertion In 2 of the 5 patients whose description suggested irregularity of the heart premature contractions were noted clinically

(*d*) *Giddiness* —This was present in half the patients and a prominent symptom in Cases 1 and 14 It usually accompanied the other symptoms on exertion

(*e*) *Exhaustion* —This is a complaint difficult to assess in a medical history Sixteen patients said that they were easily exhausted—e g on the march, weakness of the legs was specially mentioned by 3 as one of the symptoms which made them fall out on the march

(*f*) *Other symptoms* —Sweating was mentioned by 6 men as one of their complaints Faint feelings were a source of trouble to several men and actual syncope had occurred since enlistment in 3 (Cases 15 23, and 35) Repeated headaches had troubled 3 patients

Nervous symptoms —It will be remarked in glancing through the summaries that 9 cases (Cases 32–40) differ to some extent from the rest Palpitation was a prominent symptom with them and had been present in 7 cases for years, it is noteworthy that they also had breathlessness or pain on exertion Of these 9 patients 5 (Cases 32 35 38 and 39) were of a nervous temperament flushed readily were easily excited, both in appearance and manner the remaining 4 were normal The first two of the new patients said, "My nerves are gone" and "I cannot stand it" The "attacks" in Cases 32, 33 and 37 were similar they were induced by excitement as well as by exertion palpitation was accompanied by "fullness in the throat" tingling of fingers or coldness of feet, and sweating The attack lasted from half an hour to an hour during which time the patient felt quite exhausted, "dead beat"

Physical Signs

As cases with valvular disease of the heart and disease other than cardiac have been separately considered above it is to be expected that abnormal physical signs will be few The physique and general appearance of the patients did not differ greatly from that of other medical cases admitted to the clearing station A few of nervous temperament are cited above when describing symptoms

The rate of the pulse —The average pulse rate among the 40 patients, while lying down, was 75 per minute It was below 70 in 12 between 71 and 80 in 13, and between 81 and 90 in 11 cases In 3 patients only was the rate higher than 90 In Case 25 it was found to be 92–104 on five successive days, in Case 22 it was 90–96 on three successive days, in Case 13 94–110 on three days of observation It will be seen that while it is higher than that of normal men the average rate among patients with "soldier's heart" is not high, so that tachycardia is not a feature of the group as a whole For the effects of posture and exertion on the pulse rate see the section on exertion tests

The size of the heart —In the absence of opportunities for orthodiagraphy and recognising the unreliability of percussion in slight changes in size it was decided to use the position of the apex beat as the guide, with the patient recumbent Among my 40 patients this was felt in the 5th (occasionally fourth) space, internal to the nipple line in 23 cases, in the nipple line in 6 cases, and just external to that line in 2 cases only (Cases 12 and 19) In no case was the impulse felt in the sixth intercostal space In 9 men the apex beat was not palpable, but to percussion the heart was not enlarged Hence evidence in favour of enlargement of the heart was only present in two cases (Cases 12 and 19) unless palpation of the apex beat in the nipple line is regarded In the 6 cases where this was its position not even a faint murmur was heard

Auscultatory signs —There was no alteration in the heart sounds and no murmur in 26 cases out of 40 In Cases 2 and 11 the heart sounds were distant and in Cases 1 16, and 19 (*q v*) they were modified A short soft systolic murmur was heard at the apex in 9 cases only, and in them the pulmonary second sound was not accentuated In 5 of these where the test is noted the murmur was absent on standing

In Cases 2, 26 and 37 the radial arteries were thickened more than usual at their ages—43 51, and 33 years respectively, but their urine contained no albumin, and there seemed little in favour of considering their symptoms to be due to arteriosclerosis The urine was examined in 21 cases not in the earlier patients seen, and was free from albumin Premature contractions were noticed in 3 patients as I have Case 32 they occurred after every normal beat (pulse bigeminus)

Exertion Test

In all but three cases the following exertion test was applied After the patient had been lying on his stretcher for half an hour the pulse rate was taken by palpation counting one-half minute He was then told to stand and the pulse rate was immediately counted during the next half minute Then he was accompanied while climbing 20 steps at a moderate pace and his pulse was again taken in the same way The symptoms provoked were noted and controlled by observation The object was twofold first to determine the functional efficiency of the heart by noting the symptoms produced in different patients by the same amount of exertion, and secondly to decide whether the increase in pulse rate bore any relation to the severity of the symptoms produced

1 *The symptoms induced by a standard amount of exertion as a test of precordial efficiency* —In the absence of physical signs of heart disease symptoms assume an especial importance and a clinical test which reproduces them becomes most necessary Five patients (Cases 10 11 22 23 and 27) showed rather severe shortness of breath they were pass

after climbing 20 steps or, in Cases 10 and 11, after walking 30 yards slowly Yet examination revealed no physical signs of heart disease, and their pulse rate did not increase on the test exertion more than that of patients *without* breathlessness after the test (see table) We are led to conclude, however, from the medical history and from the severe symptoms induced by an easy exertion test, that they were suffering from considerable cardiac insufficiency Of the remaining patients, about half showed a slight or moderate degree of breathlessness after the exertion test and the other half showed none Regarding cardiac efficiency the test gave evidence which was valuable both in controlling the patient s assertions and in deciding the grade of disability

2 *The increase in pulse rate after a standard amount of exertion* —This proved to be valueless as a means of estimating cardiac efficiency Reference to the appended table shows that, although the increase is greater in these patients than in normal men, this increase bears no relation to the production of symptoms The patients without breathlessness after the test, those suffering slight breathlessness and those suffering severe breathlessness all showed an increase in pulse rate of much the same degree

Table showing the Incidence of Breathlessness and Increase in Pulse rate after Exertion Test (Cases of "soldier's heart" and controls)

—	Shortness of breath	Average pulse rate— Lying	Standing (first ½ min)	After exertion (first ½ min)	Average increase in rate— Standing	After exertion
20 healthy soldiers	None	72	80	93	8	21
10 patients (soldiers heart")	None.	72	100	118	23	46
10 " "	Slight.	78	106	127	28	49
10 "	Moderately severe.	80	107	127	27	47

After history

The prognosis in this group of patients can only be decided when a large number of them have been followed over a long period of time Some information on the early after-history of the cases recorded in this paper is now available At the end of May 1916, a personal letter of inquiry was sent to the home address of each man, with a request that it should be forwarded to him When this failed to elicit a reply, inquiries were made at his depot or battalion In 39 out of the 40 cases replies were received and a short note on the early after history of each man will be found at the end of each summary It is rather disappointing to learn how few are back on full duty and free from symptoms The present condition of the 40 patients after an average period of 7 months (minimum 4 months maximum 14) from the date of reporting sick is as follows —

Full duty, no complaints	4 (Cases 19 28, 34, 39)
slight symptoms	2 (Cases 3 5)
no better	3 (Cases 6 24 31)
Light duty no complaints	1 (Case 36)
" slight symptoms	5 (Cases 1 10 30 32 35)
" no better	11 (Cases 2 8 12 14 16 18, 21, 22 26 27 37)
Still in hospital, improving	4 (Cases 7 20 23 40)
" no better	3 (Cases 15 25, 38)
Discharged permanently unfit, and no better	4 (Cases 9 13 29 33)
One killed one deserted from home service	2 (Cases 4 17)
No traced	1 (Case 11)
Total	40

[illegible] of the patients complained in their letter [illegible] that they were being retained on duty although they felt [illegible] unfit [illegible] This may [illegible] be true for the [illegible] of [illegible] physical [illegible] makes it easier for a [illegible] to [illegible] But it seems that considerable [illegible] are [illegible] by medical officers when [illegible] to find the physical signs upon which the [illegible] [illegible] Only [illegible] [illegible] by medical officers [illegible] they [illegible]

extremely difficult to obtain consent to the discharge of recruits who, though incapable of sustaining the drill and marching, present no conclusive physical signs of heart disease It would surely be a considerable saving if such men, potential invalids and unfit to be soldiers, could be discharged from the Army while still recruits If this were done the number of these cases going sick while on active service could be considerably reduced If, as is suggested, the symptoms in many cases are merely unmasked by military duties and the disability was present before enlistment, such men will return to their civil employment without any permanent disadvantage from their military service

Treatment directed to overcome a persistent cardiac defect is unlikely to be successful in returning men to full duty as soldiers, but in patients whose disability has arisen during active service better results may be obtained from treatment, and much attention is now being given in the Army Medical Service with this end in view The importance of sufficient rest and abstention from full duty in patients convalescent from acute infections is emphasised by several of the histories

The Nature of So called 'Soldier s Heart"

The war has revealed the presence among soldiers of a large number of men who present symptoms especially breathlessness and precordial pain, suggesting heart disease, but in whom no signs of disease are found on physical examination Attention has been directed to them in previous wars and to a less extent during peace Their importance from a military standpoint is obvious, for these men, although passed by the recruiting medical officer as fit, prove unable to carry out their duties as soldiers In addition to its national significance, the existence among the civil population (from which soldiers are drawn) of so many men whose hearts prove inadequate for the exertion inseparable from military service provides a problem of considerable medical importance

Certain views have been advanced respecting the nature of this group of patients It has been ascribed to hyperthyroidism Enlargement of the thyroid gland, tachycardia, and nervous disturbances are the leading features of this disease in the absence of exophthalmos The only two among our 90 cases in whom the thyroid gland was enlarged are noted in the non cardiac series, no enlargement was detected in any of the 40 patients now being considered Tachycardia was notably infrequent among them, as will be seen on reference to the rates given in the section on physical signs The rapid heart of hyperthyroidism tends to be rapid when the patient is at rest, the average pulse rate of these patients at rest was 75 per minute Nervous disturbances were present in several cases, as might be expected, but not of a character or degree to suggest hyperthyroidism as their exciting cause Excessive smoking especially of cigarettes has been blamed as the source of the disability yet half these patients were either pipe smokers or smoked very little Smoking is undoubtedly an accessory cause in certain patients In the past many cases of cardiac disability have been regarded as the immediate result of some special muscular effort Of recent years however, there is a growing conviction that it is rare for physical strain alone to injure a heart which was previously healthy In most cases of so called 'heart strain' where symptoms seem to date from some unusual effort careful examination reveals the presence of old disease or of a new and abnormal rhythm or the history includes a recent infection Among 40 patients only four attributed the onset of symptoms to a particular exertion, these histories are examined above under etiology Although functional nervous disease may be present in a few of the patients it cannot be held to explain the larger number, and malingering could only give rise to error in an occasional case

The 40 patients who remained after excluding those with valvular and non cardiac disease suffered from cardiac disease or disorder difficult to place in any medical category No doubt exception will be taken to the inclusion of some patients in this series It may be said that we are confronted with a mixed group of cardiac diseases and disorders, and this is the writer s opinion

The fact that more than half the patients had shown the same symptoms in civil life suffices to prove that the disability is not one peculiar to soldiers rather is it one [illegible] by war conditions or revealed by the exigencies of

a soldier's life In civil employment a man can "take his own time" and the work is that to which he has been accustomed for years Where the disability did first show itself during military service the apparent causes were various In some it clearly resulted from an infection In a few men the strain of campaigning was disclosed by cardiac as well as by nervous symptoms The mental and nervous element in those undergoing the strain of war cannot be overlooked The sensations which arise from a disordered heart must be received by the central nervous system and realised in the consciousness of the individual A slight disorder of the heart appreciated by a too sensitive nervous system may lead to complaints, genuine enough, but of greater intensity than a man with a normal nervous system would feel

In most cases where the cause of cardiac impairment is obscure, the heart proved capable of bearing an average amount of strain, but that demanded by military necessity became excessive for the individual and symptoms began to appear It was not "heart strain" from a particular exertion, but an inability of the heart to cope with the arduous work involved in, say, a prolonged march with a full pack The question arises whether the heart muscle is healthy in these men Progress in the realm of heart disease has been so great in recent years that it may be salutary for us to encounter this group of patients, isolated by the conditions of war, for whom our physical methods of investigation are found inadequate Before the war Sir James Mackenzie was urging that more attention should be directed to the study of the efficiency of the heart muscle, and now confronted with patients like these, more knowledge on this subject is imperative If a soldier is unable to carry out the task his fellows perform because he becomes breathless and experiences precordial pain, we cannot be content to say that no physical signs of heart disease are present, the fact remains that the heart is inefficient If the methods habitually used for the elucidation of cardiac disease are insufficient, other methods must be utilised and other tests devised

Until the physical signs of myocardial disease or impairment are more satisfactory, attention must be directed to symptoms their mode of production interpretation, and significance All our patients were separated by a test of myocardial efficiency—the physical exertion incidental to active service This test can be imitated clinically to some extent by noting the symptoms produced in different patients by a standard amount of exertion When this test was applied to cases in our series all grades of disability were found Some were actually panting when they had climbed but 20 steps, and that slowly If the history shows that a disability of so serious a degree is permanent the diagnosis of myocardial disease is surely permissible But it was not found possible to separate these cases with myocardial disease from the rest There was every gradation from the men incapable of climbing the steps without panting to those in whom the test failed to produce any symptom, just as in the history there was every grade of disability from the man unable to march a hundred yards to the man only a little below the average in his marching capacity Hence it is difficult to decide when the diagnosis of myocardial disease is warranted It may be that myocardial disease of different grades accounts for a large number of the patients under consideration In the milder cases we may assume the presence of some functional and perhaps temporary disorder of the heart But in cases where the disability has been present for years showing itself slightly at civil work and more on military training and campaigning—whenever indeed the exertion test was sufficiently applied—it becomes reasonably certain that there exists some pathological change in the heart muscle The after history of failure to improve with rest and treatment given by so many of these patients supports this hypothesis

Conclusions

1 Among soldiers in training and on active service are found a number who report sick for cardiac symptoms on exertion but show none of the physical signs indicative of heart disease

2 These men are the subjects of a cardiac disability which is unmasked by the exertion required of a soldier It is not a specific variety of heart disease and represents such a condition as soldier's heart In about half the cases in this series the disability had been present to a greater or less extent in civil life and was therefore not the result of military service

3 The relative cardiac inefficiency may be (a) A sequelae of acute rheumatism, dysentery, influenza or other infection (b) The result of myocardial changes due to age, especially in soldiers over 40 (c) Associated with functional nervous disorder, particularly where palpitation is a prominent complaint (d) Due to endowment with a heart of limited efficiency, so that the individual has "always been short winded" and fails to improve under training The cause may be a congenital incapacity for full development of the heart an unrecognised infection during infancy or the absence of physical training during adolescence

4 A simple exertion test, such as climbing 25 to 50 steps reproduces the symptoms in these patients and so furnishes valuable information on the functional efficiency of the heart The rate of the heart at rest is little higher than that of normal men, though the increase on exertion is greater Nevertheless the increase of rate on exertion bears no relation to the symptoms elicited, and is therefore valueless in judging the functional efficiency of the heart

5 Some degree of myocardial disease is present in a number of cases, witness the history of infection, especially acute rheumatism, the long history and persistence of the disability, and the reaction to simple exertion tests

6 The absence of abnormal physical signs in the heart of a soldier should not prevent his discharge from the army if under training or on active service, he shows breathlessness and precordial pain whenever he undergoes exertion well borne by his fellows

CASES OF SO CALLED SOLDIER'S HEART

CASE 1 —Corporal —— (Regimental No 12531) aged 21 History Miner quite well before enlistment in August 1914 March, 1915 to France About June began shortness of breath and palpitation on exertion Later, precordial pain (fifth space between nipple and middle line) and giddiness, even on walking August admitted to Casualty Clearing Station (C C S) Examination Apex beat, fifth intercostal space, internal to left nipple line First sound duplicated at all areas second sound duplicated, but not loud, at base No murmurs Nine months later Light duty, slight symptoms

CASE 2 —Private —— (10176), aged 43 History Age 22 to 32 in Army quite well Age 34 to 42 stone worker Occasional pain at left costal margin on exertion doubtful whether short of breath August, 1914 re enlisted October, to France December to England with shortness of breath swelling of feet, and pain as described June, 1915, again to France Unable to march because of dyspnœa palpitation and pain September admitted Examination Apex beat not felt Heart sounds distant No murmurs Radial arteries moderately thickened Nine months later Light duty, no better

CASE 3 —Lance Corporal —— (13633), aged 28 History Heavy work as smith no illnesses except "influenza and bronchitis" in January, 1914 September enlisted July, 1915, to France In August, during a march felt sudden sharp pain near apex beat, accompanied by nausea dizziness sweating and palpitation and followed by aching in left breast A month later similar attack while bent throwing No complaint about breath September, a limited Examination Apex beat fifth space internal to nipple line At apex short soft systolic murmur disappearing on standing Pulmonary second sound not accentuated Nine months later Full duty in France slight pain

CASE 4 —Corporal —— (8344) aged 39 History Age 21 to 28 in Army, served in South African War Age 28 to 33 dysentery in Egypt Age 28 to 33 machine man quite well August 1914 re enlisted April 1915 to France July to August dull pain at apex beat especially on marching also short ness of breath and exhaustion September, a limited Examination Apex beat fifth space in the nipple line Heart sounds normal no murmurs Six months later Killed on active service

CASE 5 —Gunner —— (27417) aged 23 History Age 1[illegible] (1907) enlisted, later in Reserve quite well August 1914 to France with Royal Garrison Artillery Since March 1915 slight shortness of breath on exertion also palpitation and stabbing pain at left costal margin [illegible] addition, mild attack of bronchitis [illegible] of breath and palpitation persisted [illegible] later [illegible] Examination Apex beat not felt Heart [illegible] Short faint systolic murmur at apex [illegible] signs of bronchitis Nine months later Full duty in France slight palpitation only

CASE 6 —Private —— [illegible] subject to colds [illegible] tation and [illegible] September 1914 enlisted [illegible]

r hurrying September, 1915 to France Palpitation short ness of breath, exhaustion and dull pain in fourth to sixth left spaces about nipple line all on marching After one month admitted Examination No abnormal physical signs Eight months later Full duty in France, but no better

CASE 7 —Private —— (4228), aged 28 History At school and at light work as packer easily out of breath, "wind" never good Palpitation dizziness and occasional præcordial pain on exertion May 1915 enlisted Sharp pain in left breast and shortness of breath at drill Slight dizziness September to France Sharp pain from third to fifth space in nipple line and shortness of breath whenever marching with pack Palpitation also at night After one month admitted to C C S (October) Examination No abnormal signs Eight months later Hospital, improved, still pain

CASE 8 —Private —— (1129), aged 30 History Since at school and while a labourer, palpitation, præcordial pain and breathlessness on exertion September, 1914, enlisted November, to France, palpitation and exhaustion during trench work. Since August 1915 breath very short on march with sweating and palpitation October, admitted Examination Apex beat fifth space, internal to nipple line Short soft systolic murmur at apex, disappearing on standing Seven months later Garrison duty, no better

CASE 9 —Private —— (469) aged 28 History Wheel wright, quite well December 1913, joined Reserve August 1914 to France Quite well until two weeks before admission, when he was in bed four days with "influenza" (headache, pains in chest loss of voice) On return to sentry work, præcordial pain on walking, While in bed attacks of severe pain beginning in fourth left space and extending down inner side of left arm The pain lasted about five minutes and recurred every hour, it left the arm weak and tingling No shortness of breath during the attacks A week later, February, 1915, admitted Slight præcordial pain on admission Examination Apex beat, fifth space in nipple line Heart sounds normal, no murmurs. Fifteen months later Still some pain January, 1916, discharged permanently unfit

CASE 10 —Private —— (997), aged 21 History Farm labourer, quite well August 1914 mobilised from Reserve and sent to France One month before admission, "influenza", in bed three days with pyrexia, weakness, and cough On returning to duty experienced attacks of sharp pain from apex beat to anterior fold of axilla and down left arm to elbow These attacks were induced by exertion as lifting and lasted several minutes stopping suddenly He also found himself short of breath on moderate exertion March 1915 admitted Examination Apex beat, fifth space, internal to nipple line Heart sounds normal Fourteen months later Light duty, almost well

CASE 11.—Sergeant —— (8418) aged 36 History Aged 17 to 29 in Army In 1908 acute rheumatism, discharged from Army Since aged 32 furnaceman, shortness of breath and palpitation on severe exertion Syncope three times August 1914, re-enlisted Attack of orthopnœa and œdema after exposure at a review Improved and went to France in May 1915 Præcordial pain and breathlessness on severe exertion Five days before admission, while carrying telephone wire under fire felt sudden pain at apex beat shooting down left arm "I thought I was shot" Fell down very short of breath Left arm remained sore and weak. Two days later similar attack but with unconsciousness, left arm useless Two days later August, admitted Examination Slight breathlessness, no pain Apex beat no felt area of cardiac dullness not enlarged Heart sounds distant no murmurs

CASE 12.—Private —— (13561) aged 20 History Age 12 to 16 newsboy much running and exposure Carpenter Pain at apex beat and breathlessness on exertion during three years before enlistment September, 1914 enlisted Præcordial pain and shortness of breath on marching during training and since arrival in France November, 1915 admitted to C C S Examination Apex beat fifth space just external to nipple line Heart sounds normal short faint systolic murmur at apex absent on standing Pulse 80 Seven months later Garrison duty no better

CASE 13 —Private —— (5153) aged 35 History Age 20 enteric fever in South African War Age 25 to 34 boiler maker heavy work quite well August 1914 mobilised from Reserve Fell out on march during training and in France with breathlessness palpitation and exhaustion July 1915 after six miles marching while very short of breath felt his heart stop became giddy and fell down faint August admitted Examination Apex beat fifth space internal to nipple line Heart sounds slightly faint no murmurs Five months later No better discharged permanently unfit

CASE 14 —Driver —— (9929) aged 33 History Labourer but had done light work because of shortness of breath on exertion August, 1914, enlisted During training and later in France riding produced breathlessness and palpitation The breath became worse 'couldn't possibly run," and he became giddy even on mounting a horse November, 1915, admitted Examination No abnormal signs Six months later Base duty, no better

CASE 15 —Private —— (5132), aged 19 History Machinist. Frequent faint feelings Shortness of breath and palpitation on over-exertion Could not cycle as far as his friends September 1914, enlisted Fell out at drill and on the march with breathlessness August 1915 to France, same symptoms and also syncope November, admitted Examination Apex beat not felt Short faint systolic murmur at apex, absent on standing Six months later Still in hospital, no better

CASE 16 —Gunner —— (62006), aged 36 History Labourer Age 30, obtained lighter work on account of shortness of breath palpitation and giddiness on exertion Heavy beer drinker September, 1914, enlisted Breathless on doubling, discharged from Army January, 1915, re-enlisted June, to France. Unable to march because of breathlessness, præcordial pain at apex beat, palpitation and exhaustion Examination Apex beat not felt Short soft systolic murmur at apex. Second sound duplicated at all areas Pulse 84, small volume, artery not thickened Six months later Base duty, no better

CASE 17 —Private —— (12074), aged 30 History Metal polisher Good boxer in youth Since age 24 palpitation on excitement and in bed Games relinquished for this reason and for shortness of breath August, 1914 enlisted Work in stores June, 1915, to France Fell out on march or on handling sacks, because of breathlessness, palpitation, and faint feelings November, admitted Examination Apex beat, fifth space internal to nipple line Short soft systolic murmur at apex. After six months Home service, deserted April, 1916

CASE 18 —Corporal —— (1339), aged 42. History Age 19 to 31 in 17th Lancers "Was your wind fairly good?" "No, my breath has never been what it should be" Age 27, enteric fever during South African War Age 39 and 41 acute rheumatism Age 31 to 41 in Reserve, light work, breath short on walking home, a mile January, 1915, re-enlisted, to France as mounted police Breath short when trotting September, after trotting 500 yards sudden severe pain in fourth left space, internal to nipple line, localised, lasted ten minutes, breath short "I felt that my last day had come" Since this attack pain and breathlessness whenever he tries to trot December admitted Examination No abnormal physical signs Five months later Light duty, no better

CASE 19 —Private —— (18581) aged 30 History Shopman Never played games, "I could never run without being puffed" Age 24, acute rheumatism Breath became worse, occasional pain in sixth left space about nipple line May, 1915 enlisted Excused drill and marching because of breathlessness September to France On marches to and from trenches shortness of breath præcordial pain (sixth space in nipple line) palpitation and dizziness December, admitted Examination Apex beat fifth space, half inch external to nipple line First sound resembles second at apex No murmurs Six months later Full duty in France

CASE 20 —Private —— (7559), aged 17 History Age 12, acute rheumatism (?) Painter Long winded good cyclist June 1915 enlisted "Training did me good" Long route marches well borne November (seven weeks before admission) to France Exhausting trench work, no colds or other illnesses Three weeks ago began to notice breathlessness slight throbbing pain in left breast, and exhaustion all on exertion A week ago while carrying a heavy waterpipe felt a pain and strained feeling in the left breast second to fifth spaces, with giddiness and shortness of breath January 1916, admitted Examination No abnormal physical signs The aching in the second third and fourth spaces persisted during a week in bed Five months later Still in hospital, much better

CASE 21 —Sergeant —— (9050) aged 42 History Age 18 to 35 in Army good runner Age 28 syphilis Age 35 left Army and became miner Began to notice shortness of breath on heavy exertion March, 1915 re-enlisted May, to France, short of breath on a long march From November more breathlessness and some pain below left breast fifth to seventh spaces on marching January, 1916, admitted Examination Slight shortness of breath in bed Apex beat not felt Heart sounds normal no murmurs. Four months later Light duty symptoms worse

CASE 22.—Driver —— (35694) aged 19 History Never long winded relinquished heavy work as fitter on account of shortness of breath and became messenger February, 1915 enlisted fell out on doubling with breathlessness October to France Shortness of breath on riding, to

hospital December again in hospital for same complaint January, 1916, admitted Examination No abnormal signs Five months later Base duty, no better

CASE 23 —Private —— (10918), aged 43 History Brick layer Aged 40, pneumonia One year breathless and giddy on hurrying June 1915, enlisted Unable to double or march far because of breathlessness and also giddiness Syncope three times January 1916, to France, reported sick with same symptoms and admitted to C C S Examination No abnormal physical signs Four months later Still in hospital improving

CASE 24 —Private —— (12016) aged 26 History Age 20 (1910), enlisted Good runner In 1913, five weeks in hospital in Egypt with pyrexia of unknown origin Two months later sent to England as D A H Gave up running because of breathlessness August 1914 mobilised and sent to France Exhaustion and pain in left breast at retreat from Mons Since December similar pain and also breathlessness on marching or on lifting Examination Apex beat, fifth space, internal to nipple line Short soft systolic murmur at apex, localised Pulmonary second sound not accentuated Four months later Full duty, but no better

CASE 25 —Private —— (11858), aged 22 History Porter, light work, well Good swimmer August, 1914, enlisted Training well borne November, to France, no symptoms February, 1915, to England with trench feet and lumbago November again to France Found himself breathless after marching a hundred yards Palpitation and giddiness under shell fire January, 1916, admitted Examination Nervous temperament No abnormal physical signs Pulse-rate remained about 100, lying during the five days under observation Four months later Seen personally in hospital, no better

CASE 26 —Private —— (7605), aged 51 History Mill worker Several years palpitation and breathlessness on heavy exertion September, 1914, enlisted Excused doubling and marching because of shortness of breath, palpitation, and weakness of legs November 1914, to France Since October, 1915, symptoms worse and accompanied by a weak feeling in the left breast January, 1916, admitted Examination Apex beat, fifth space, in the nipple line Heart sounds normal, no murmurs Arteries, moderately thickened, perhaps more than usual at his age Four months later Light duty, no better

CASE 27 —Private —— (18722), aged 41 History Labourer Three years breathless and giddy on heavy exertion March 1915, enlisted Excused all drill and marching because of breathlessness October, to France Fell out panting, on march, and admitted to C C S January 1916 Examination Apex beat, fifth space, in the nipple line Heart sounds normal, no murmurs Four months later Light duty, fairly well

CASE 28 —Private —— (55695) aged 30 History Brick layer quite well February 1915, enlisted Good marcher In France, July, off duty one week with pain in back and limbs On return to duty, palpitation and a weak feeling going into my left arm sweating and giddiness produced by exertion or excitement On running became "blown" and had pains across the front of the chest Examination No abnormal signs Nine months later After six months hospital, better, in India

CASE 29 —Sapper —— (132522) aged 44 History Labourer Three years short winded and troubled with palpitation October 1915, enlisted November to France Fell out on marches with palpitation exhaustion and shortness of breath Light duty January, 1916 admitted Examination No abnormal physical signs Four months later No better, discharged permanently unfit

CASE 30 —Corporal —— (11196) aged 19 History Mechanic Two years occasional sharp pain near left nipple with some difficulty in breathing August 1914 enlisted Doubling produced precordial pain and breathlessness but could march steadily April, 1915 to France A week before admission, while walking sudden giddiness shooting pain in left breast, and a stifling feeling Palpitation Bruised feeling from left nipple to armpit Several similar attacks since always with dyspnœa September admitted Examination Apex beat not felt No abnormal physical signs Eight months later Home service improved

CASE 31 —Private —— (12259) aged 32. History Age 15 pneumonia Till age of 27 waiter age 27 to 31 miner occasional pain across front of chest after long shifts No shortness of breath August 1914 enlisted On doubling he always felt a gripping sensation across the front of the chest so that he could scarcely breathe Similar symptoms on marching with full pack in training and since in France August 1915 admitted Examination Poor physique No other abnormal physical signs Nine months later Full duty but no better

CASE 32 —Driver —— (69599), aged 37 History Gardener Several years attacks of giddiness sweating, and vital syncope several times Readily short of breath on exertion and subject to palpitation February, 1915, enlisted riding or drilling, breathlessness, dull pain in left b palpitation, and exhaustion Easily excited Hands cold and numb August admitted Examination and nervous No abnormal physical signs Nine later Base duty, some improvement

CASE 33 —Driver —— (24779), aged 45 History Mach Amateur boxer till age of 25 Since 1913 occasional pa back, otherwise well September, 1914, enlisted O to France February, 1915, pains in back and attacks palpitation with breathlessness and exhaustion, induced riding or by excitement Occasional aching pain at a beat on trotting August, admitted Examination beat not felt No murmurs A premature contra heard after each normal beat Nine months later better, discharged permanently unfit

CASE 34 —Private —— (1813), aged 19 History Carm Sharp pain limited to anterior part of fifth left interc space, on severe exertion Occasional attacks of dizzi and palpitation on exertion August, 1914, enlisted Sim symptoms during training, marked Home service" Ja 1915, to France Attacks of dizziness palpitation, a sweating Precordial pain (fifth left space only) and s breathlessness on exertion August, admitted Examin tion Apex beat, fifth space, internal to nipple line murmurs A premature contraction was heard after ev few beats Nine months later Duty in India no complai in letters home

CASE 35 —Corporal —— (279), aged 28 History Japan Syncope at school and every few months since Nerv Fingers often "go dead" August 1914, enlisted Fai feelings at drill June, 1915, to France Exhaustion c march also some breathlessness Several weeks be admission, syncope and faint feelings Pain from b nipple to costal margin when under fire October, admitt Examination Depressed appearance fingers cold abnormal physical signs in heart Eight months la Home service, symptoms slight

CASE 36 —Sergeant —— (113181), aged 22 History Teac Age 17, discontinued football because of palpitation a rather short winded Age 18, joined Territorials Aug 1914, mobilised Light work as instructor August 1915 France A month later in a severe engagement Since th exertion or excitement more readily produces palpitat and giddiness Wind fair October, admitted Examin tion No abnormal physical signs Eight months la Light duty in France, no complaints

CASE 37 —Sergeant —— (31673), aged 38 History Age 1 enlisted Age 23, during South African War army cle palpitation troublesome, discharged from the Army D A H Clerk Frequent palpitation with giddiness Fa exhausted August, 1914 re-enlisted In France office wo frequent palpitation and exhaustion Attacks of gid line with these symptoms and gasping for breath August 191 admitted Examination Nervous temperament Ape beat, fifth space in the nipple line Heart sounds normal faint systolic murmur at base only Radial arteries mo ately thickened Ten months later Light duty symptoms

CASE 38 —Private —— (7571) aged 33 History Shopman Several years palpitation on exertion Short winded August 1914 enlisted In training easily exhausted and rather s of breath October, to France May 1915 to England wit exhaustion returned to France in October On marchin weakness especially of legs and tightness across front chest November admitted Examination No abnorma physical signs Six months later Still in hospital better

CASE 39 —Driver —— (79058) aged 21 History Labour Always short winded and subject to palpitation Age 1 enlisted one year before war Palpitation and some s ness of breath August 1914 mobilised In France n under fire Palpitation increased and now occurs on least excitement Slight breathlessness December 1 admitted Examination Nervous temperament Ape beat fifth space internal to nipple line Short soft sys murmur at apex disappears on standing Five mont later Duty in Greece no complaints in letters

CASE 40 —Private —— (1707) aged 27 History Age 20 away from work four months with indigestion pitation and weakness symptoms persisted April 1 culis c l easily exhausted in training November to Fra On marching exhaustion and some palpitation and lies leness No indigestion January 1916 admitted H miration Apex beat fifth space in the nipple line He sounds normal no murmurs Pulse-rate 100 to 110 three days then 80 Six months la Still in hospital much better

N ENTERIC-LIKE FEVER IN THE ANGLO-EGYPTIAN SUDAN

ALBERT J CHALMERS M D VICT, F R C S ENG, D P H
DIRECTOR, WELLCOME TROPICAL RESEARCH LABORATORIES

AND

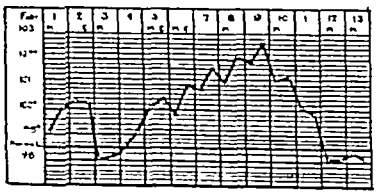
NORMAN MACDONALD,
JUNIOR BACTERIOLOGICAL LABORATORY ASSISTANT WELLCOME TROPICAL RESEARCH LABORATORIES KHARTOUM

FEVERS caused by Eberth s bacillus and by the organism paratyphoid A, and to a less extent paratyphoid B are ell known to occur in the Anglo-Egyptian Sudan, while rchibald, in the fourth report of these laboratories, has rawn attention to the presence of peculiar enteric like evers clearly separable from the above which are also met ith at times In addition to these varieties, last year we ame across a number of cases of an enteric like fever which ere not caused by the ordinary organisms as shown by lood cultures, fæcal cultures, and agglutination tests These cases caused us much trouble until we separated an rganism from three of them which by agglutinating with he patient's serum during the later stages of the illness ppeared to be the causal factor while its cultural and iochemical reactions indicated that it belonged to the Typhoid Colon Group As this organism does not appear o have been described, and as its recognition compelled us to devise some scheme by which the bacilli of this group could be readily recognised, we venture to bring forward the following remarks

Clinical Notes

After a preliminary period of from 1–3 days during which the patient suffers from headache, constipation and malaise, with marked (Chart 1) or slight fever (Chart 2), the febrile attack sets in gradually, being associated with marked constipation and headache and a disinclination for mental or bodily work, and with all the usual signs and symptoms of a mild attack of typhoid fever As no organisms could be cultured from the blood calomel and salines were administered and these relieved the headache but did not appear to influence the course of the fever Intestinal antiseptics of various descriptions were tried, but they appeared to be useless The diet was that usually given to a typhoid patient

CHART 1



This chart illustrates the precursory fever which may occur before the real attack and al o a typical attack without a relapse.

After about seven days from the commencement of the true rise of temperature the fever which had gradually ri en (Charts 1 and 2) to a maximum lying between 101° and 103° F subsided quickly and in about another three days fell to normal when the disease ended (Chart 1) or to nearly normal and was followed by a relapse of a more irregular and prolonged nature (Chart 2) When the temperature subsided all symptoms gradually disappeared and the patient felt quite well but if the relapse occurred the headache including constipation &c returned At no time was any patient seriously ill and at no time did a [illegible] produce other than good effects

The heart, lungs, liver, and spleen remained normal, and except for the usual febrile changes the urine was also normal Except for headache the nervous system was normal and no skin eruptions were noticed The cardinal features of the illness were constipation, fever, relatively slow pulse headache, malaise and a general feeling of illness The constipation naturally accentuates the inconvenience due to piles if present, which may cause unnecessary alarm if bleeding occurs

As no organism could be found in the blood it must be concluded that *no marked septicæmia* could have been present, by which of course it is not meant that large quantities of blood—e g , 10 c c —might not have shown an organism, but unfortunately it did not occur to us to use more than small quantities, 1 to 2 c c of blood, as usual well diluted with broth, for this purpose There being no marked septicæmia, it appeared to us that the fever was mainly toxæmic in nature but it attracted local attention at the time because of its clinical resemblance to a mild attack of typhoid fever

Since recovery some of the patients whose histories are known to us have kept quite well although more than six months have elapsed The mortality was nil The blood serum of these patients, as already stated, did not agglutinate B typhosus or B paratyphosus A or B

Causal Organism

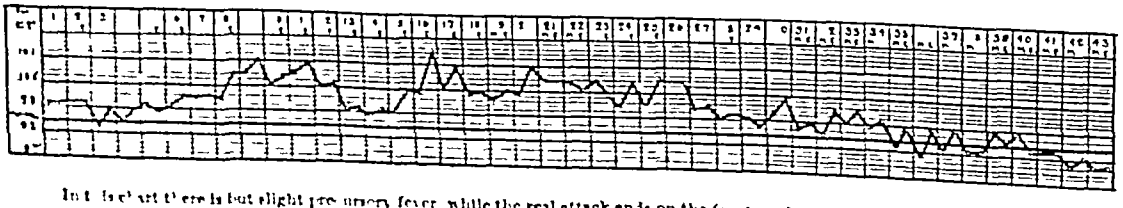
A minute piece of the fæces, obtained in a sterile Petri dish from a patient, was taken up with the tip of a platinum needle and placed in the centre of a plate of Drigalski-Conradi's medium, over which it was distributed by thoroughly rubbing it in all directions by means of a sterile glass spreader At the end of 24 hours bluish clear dewdrop colonies varying in size and regular in outline could be seen lying between the typical colon colonies Later these colonies became slightly pink When similarly plated on Fawcus s medium they appeared at the end of 24 hours as clear colonies regular in outline and varying in size lying among the typical colon colonies

When these colonies were investigated they were found to be composed of non motile, Gram negative bacilli which fermented lactose in liquid media with the production of acid and gas, and in subcultures produced red colonies on MacConkey's bile salt lactose agar This organism was agglutinated either completely or nearly completely with the patient's serum in dilution of 1 in 50, and less completely 1 in 100 in one hour after the tenth day of the illness Eberth s bacillus and the paratyphoid bacilli were not agglutinated though tested repeatedly by microscopical methods The agglutination reactions, together with the disappearance of the organism from the motions after recovery, induce us to believe that it was the causal factor of this exceedingly mild type of fever which we regard as probably merely toxæmic and producing but slight bodily reactions

The characters of the organism as grown from three patients were as follows —

Morphology —It is a Gram negative non motile rod measuring on an average about 4 microns in length by 1 in breadth When treated with carbol thionin or other stains it does not show any polar staining, being on the contrary quite homogeneous and having rounded ends

CHART 2



In this chart there is but slight precursory fever while the real attack ends on the fourteenth day and is followed by a relapse

Biological characters —It grows best aerobically at 37° C but it is a facultative anaerobe and can grow quite well at 20 22° C and at 40° C

Cultural characters —It grows well on agar-agar at 37° C , forming either isolated, raised roundish white colonies or an elevated whitish surface growth It also forms a white growth mainly along the track of the stab, in gelatin which is

not liquefied On blood serum, which is not liquefied, it produces a growth similar to that on agar agar, but the individual colonies or the confluent growths are larger and more extensive in a given time and are also moister On potato it forms a yellowish surface growth in 48 hours while in broth it gives rise to a general turbidity without any pellicle formation

Biochemical reactions -It forms acid and gas in the following carbohydrate and alcohol media —*Monosaccharides* Hexoses —glucose, lævulose, and galactose, pentoses—arabinose and rhamnose *Disaccharides* Maltose and lactose *Glucoside* Salicin *Alcohols* Trihydric—glycerol, pentahydric—adonitol, hexahydric—dulcitol, mannitol, and sorbitol

It gives rise to neither acid nor gas in —*Disaccharide* Saccharose *Trisaccharide* Raffinose *Polysaccharides* Dextrin, starch and inulin *Glucoside* Amygdalin *Alcohol* Erythrol *Phenol* Inosite

With regard to these formations it must be noted that it often failed to ferment lactose when first plated from fæces on Drigalski Conradi's medium and on Fawous plates, but it never failed in liquid lactose media to produce acid and gas It was this peculiarity on the solid media which enabled us to pick it out Sometimes it fails to ferment adonitol, but more generally it produces acid and gas

It acidified but it did not clot *litmus milk* It produced *indol* and reduced *nitrates* and *neutral red*, though it failed to give the *Voges Proskauer* reaction

Serum reactions —As already stated, it agglutinated either completely or nearly completely with the patient's serum about the tenth day of illness and diluted 1 in 50 and less completely 1 in 100 in one hour It completely failed to agglutinate when tested with polyvalent colon serum of high titre which agglutinated *B coli* Escherich and was said to be capable of agglutinating several different colon strains, the dilutions employed being 1 in 50 and 1 in 100 and the time being one hour The serum was in good condition having been tested against the laboratory colon strain

It agglutinated with specific paratyphoid A serum in a dilution of 1 in 50 after one and a half hours generally only partially but in one instance completely but its agglutination in 1 in 100 dilutions was feeble and in 1 in 1000 and upwards was absent As this serum completely agglutinated the laboratory strain of *B paratyphosus A* up to 1 in 10 000 in one and a half hours and also completely agglutinated in dilution up to 1 in 5000 and less completely 1 in 1[illegible] an organism giving the reactions of *B paratyphosus A* recently isolated from a case of fever in Port Sudan, [illegible] conclude that it was in good condition

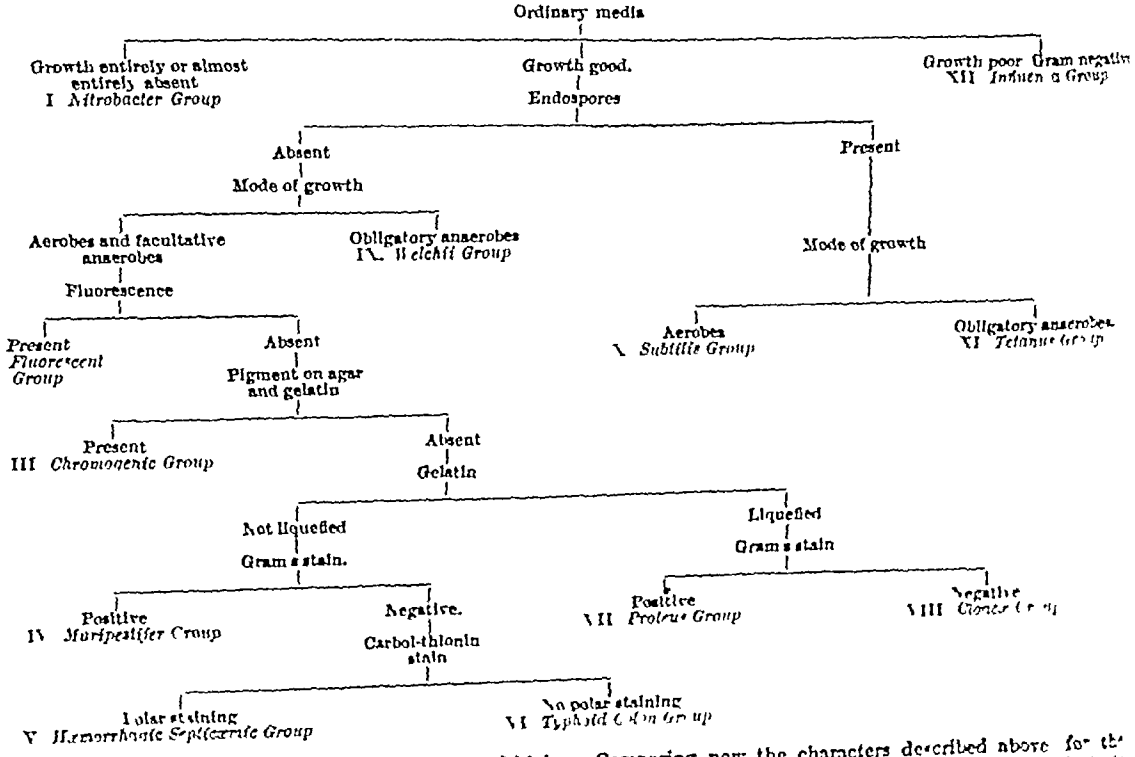
It also agglutinated with specific paratyphoid B serum but only very partially in dilutions of 1 in 50, and had [illegible] all in those of 1 in 100 in one and a half hours and [illegible] all in greater dilutions This serum was also shown [illegible] *in good condition by agglutinating at the time the laboratory strain of B paratyphosus B* completely in dilutions exte[illegible] from 1 in 50 to 1 in 10,000 in one and a half hours

These agglutinations, in our opinion, showed that [illegible] organism was capable of producing agglutinins in the patient's body, and that it was serologically more nearly related to the paratyphoid Gaertner group than to the colon group [illegible] the other hand, the reactions other than agglutinations given above show a close relationship to the colon type It therefore behoves us to consider the classification of this organism in some little detail

Classification

As the length of the organism which we are considering is several times greater than its breadth, and as it is not markedly curved in one or more planes, it belongs to Fischer's family *Bacillaceæ*, which more or less corresponds to Zopf's *Bacteriaceæ* and which probably only contains one genus, *Bacillus* Cohn 1872, as all attempts to differentiate between *Bacillus* and *Bacterium* as separate genera sooner or later break down The various groups of organisms included in the genus *Bacillus* may be differentiated according to the scheme set forth in Table I, which sufficiently explains itself.

TABLE I —*Genus Bacillus Cohn, 1872*



Comparing now the characters described above for the organism which we are discussing with the diagnostic tests laid down in this table we conclude that as this organism grows well on ordinary laboratory media without the formation of endospores and is a facultative anaerobe which is not fluorescent and does not produce pigment nor liquefy gelatin and does not exhibit polar staining it belongs to the Typhoid Colon Group

Typhoid Colon Group

The division of this group into subgroups may be accomplished in a more or less natural manner by means of the *monosaccharides disaccharides* and *trisaccharides* with the alcohol the *alcohol* mannitol

pplying these tests we first differentiate a *non-fermenting sion* which may be termed the *Alcaligenes Subgroup* ause its type *Bacillus alcaligenes*, Petruschky, 1896 (more monly and less correctly called *B fæcalis alcaligenes*), is ally said to produce neither acid nor gas in sugar media, ugh it is true that Vourloud has asserted that it can give to slight acidity in lævulose and glycerol

ll the other organisms included in the group ferment the nosaccharide glucose, but two subgroups which may be med the *Typhoid Subgroup* and the *Dysentery Subgroup* distinguished by not completely fermenting this sugar, l therefore failing to produce gas They also can and do ment disaccharides and some of them even the tri charide raffinose, producing either acidity or sometimes y slight acidity, and therefore form a natural *partial menting division*

The next step concerns the organisms which may be med the *monosaccharide fermenters*, in which the mono- charide glucose is completely fermented with the forma n of acid and gas, but this large collection of organisms n be further differentiated by means of their action upon e disaccharide lactose Three disaccharides are in common e in the laboratory, and it would appear as though organisms re, as a rule, able to ferment maltose more easily than ctose and saccharose, and lactose more easily than ccharose

With regard to lactose two subgroups, the *Paratyphoid aertner* and the *Morgan I*, fail to ferment it and this n be used as a distinguishing character, while the two bgroups may be differentiated from one another by the rmentation or non fermentation of the alcohol mannitol number of organisms, however ferment lactose, producing ther acidity only or acid and gas All these bacilli are losely related to the *B coli*, Escherich, but some of them ay be separated off because they possess the distinguishing ature of a capsule though it must be admitted that no ard and fast line can be drawn between this and the Colon ubgroup, as there are connecting links in the shape of *B aërogenes* in which the capsule is difficult to demonstrate, nd *B acidi lacti*, both of which may, with convenience, be laced in the Colon Group

This encapsulated group of bacilli has been carefully eviewed by Fricke in 1896, Clairmont in 1902, Perkins n 1904, Abel and Hallwacks in 1913, and Fitzgerald in 914, and may be termed the *Encapsulated Subgroup*, other rise known as Friedländer's B Pneumoniæ Subgroup or the Mucus Capsulatus Subgroup It is composed of short non motile, Gram negative, encapsulated pleomorphic bacilli which do not form spores do not liquefy gelatin and which ferment glucose and lactose but as regards the latter some times they give rise to acidity only, though more commonly they form acid and gas

There also appears to be a well-defined group of human intestinal bacilli which ferment glucose, giving rise to acid and gas, but which only partially ferment lactose giving rise to acid only without gas formation, while they do not possess a capsule These organisms we gather together into the *Wesenberg Subgroup* and refer readers interested therein to the writings of Alexander quoted in the references

The remaining organisms may be further subdivided by their action upon the trisaccharide raffinose and those which produce acid and gas therein may be collected together into the *Colon Subgroup* with *B coli*, Escherich, as the type species, while those which fail to ferment this carbohydrate can be placed in the *Enterious Subgroup* with *B enterious*, Castellani, as the type species

The distinguishing characters of these various subgroups may be represented in a diagnostic table given below, which shows that the various groups form a natural sequence of— Non fermenters, partial fermenters, complete monosaccharide fermenters, complete disaccharide fermenters, and complete trisaccharide fermenters Moreover, these form a sort of natural sequence, as may be demonstrated by quantitative estimations of these sugars fermented by the organism which we are considering, which are as follows —

Glucose	3 5 c c	of N/20 KHO
Lactose	2 7 c c	,, ,,
Raffinose	0·0 c c	,, ,,

The scheme suggested for the differentiation of these various subgroups is as follows —

Diagnostic Scheme of Typhoid Colon Subgroups

Non fermenters

A Glucose, lactose, raffinose, and mannitol not fermented — I *Alcaligenes Subgroup*

Partial Fermenters

B Glucose partially fermented, only acid and no gas produced, lactose, raffinose, and mannitol may or may not be partially fermented —
- I. Motile — II. *Typhoid Subgroup*
- II Non motile — III *Dysentery Subgroup*

Complete Monosaccharide Fermenters

C Glucose completely fermented with the production of acid and gas —
- I. Lactose not fermented —
  - (a) Mannitol and raffinose not fermented — IV *Morgan I Subgroup*
  - (b) Mannitol and sometimes raffinose fermented with production of acid and gas — V *Paratyphoid Gaertner Subgroup*

Disaccharide Fermenters

II Lactose partially fermented with the formation of acid but no gas, mannitol partially or completely fermented, raffinose usually not fermented — VI *Wesenberg Subgroup*

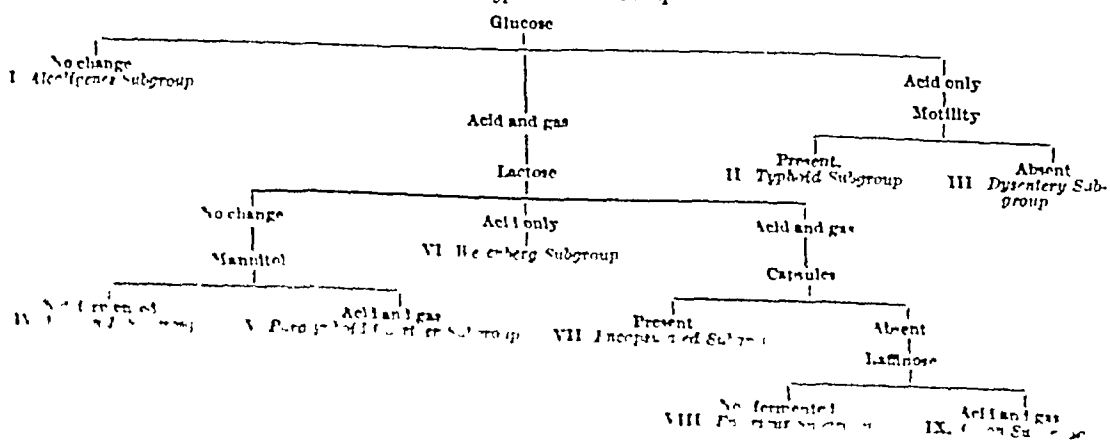
III Lactose completely fermented with the production of acid and gas —
- (a) Bacilli encapsulated — VII *Encapsulated Subgroup*
- (b) Bacilli non encapsulated —
  - 1 Raffinose not fermented — VIII *Enterious Subgroup*

Trisaccharide Fermenters

- 2 Raffinose completely fermented with the formation of acid and gas — IX. *Colon Subgroup*

This scheme may be tabulated as set forth in Table II

TABLE II —*Typhoid Colon Group*



With regard to the organism with which we are at present concerned, it will be noted that as it produces acid and gas in glucose and lactose, while it neither possesses a capsule nor ferments raffinose, it must be placed in the subgroup which we term the *Enterious Subgroup*, which we must now consider in detail

Enterious Subgroup

As indicated above, this collection of organisms is composed of *short, homogeneous, non encapsulated, Gram negative bacilli which produce a whitish non fluorescent growth under aerobic and anaerobic conditions on agar-agar at 37° C and on gelatin which is not liquefied at 20° C, and are capable of producing acid and gas in glucose and lactose but not in raffinose* The oldest organism with which we are acquainted which is capable of being classified in this group is that described by Castellani as *B enterious*

As we do not happen to have the Ceylon Medical Reports before us at the present time we are uncertain as to the exact date of the first description, but details with regard to the organism can be found in Castellani and Chalmers (1910) "Manual of Tropical Medicine," first edition, p 991, or (1913) second edition pp 1350, 1381, Castellani (1912), *Journal of Tropical Medicine and Hygiene*, xv, pp 164, 165

B enterious is a non motile, Gram negative bacillus which does not liquefy gelatin and produces turbidity in broth with a *slight pellicle and gives the indol but not the Voges* Proskauer reaction It produces acid and gas in glucose, lævulose, galactose, arabinose, maltose, and lactose, but not in saccharose or raffinose, and it can also produce acid and gas in dextrin, dulcitol, mannitol, and sorbitol, but not in adonitol

The next organism which must be placed in this group is *B giumai*, which was described by Castellani in the Report of the Advisory Committee for the Tropical Diseases Research Fund for the year 1912 and published in 1913 He isolated the organism from a case of appendicitis and named it after his native Uganda servant of ten years previously who had recently died of sleeping sickness

B giumai is a non motile, Gram negative bacillus which produces growths on agar agar, glycerin agar, and serum, resembling the bacilli of the typhoid and dysentery groups and does not liquefy gelatin, but it produces indol and renders litmus milk first acid and then alkaline It gives rise to acid and gas in glucose, laevulose, galactose, arabinose, rhamnose, maltose, and lactose (the production of gas in this sugar is very slight), but neither acid nor gas in saccharose or raffinose It also ferments dextrin, salicin, and sorbitol, forming acid and gas, and glycerol, giving rise to only acidity, while it does not ferment inulin, amygdalin, erythrol adonitol, dulcitol, mannitol, or inosite

As the organism which we are considering also comes in this subgroup and appears to differ from *B enterious* and *B giumai* we give it the name *B khartoumensis* for purpose of differentiation, and we now compare the reactions of the three bacilli (excluding the group reactions) by means of Table III

As the reactions given above indicate that the Enterious Subgroup is closely related to the Colon Subgroup it appears to us to be advisable to consider the latter in greater detail

The Colon Subgroup

The organisms gathered together to form this subgroup of the Typhoid Colon Group are *short, homogeneous non encapsulated Gram negative bacilli with rounded ends which produce a whitish non fluorescent growth under aerobic and anaerobic conditions on agar agar at 37° C and on gelatin which is not liquefied, at 20° C and are capable of producing acid and gas in glucose lactose and raffinose* It appears to us that the first division of this group should be made as suggested by Smith in 1895 into those organisms which produce and those which do not produce indol We are aware that much difficulty has been experienced by some workers with the indol test but we refer the reader to Kligler's paper quoted in the references for details as to this test

It also seems to us that the indol producers can be further subdivided as was pointed out by Durham in 1901, by the fermentation or non fermentation of saccharose, the former subdivision being known as the *Communior Section*, while the latter can be called the *Communis Section*

Further differentiation may be accomplished by the use of dulcitol as suggested by MacConkey In this way a diagnostic scheme may be composed as follows —

Escherich's Colon Subgroup

A Smith's Indol Producing Division

I Durham's Communior (Saccharose fermenting) Section

(a) *Dulcitol fermenters*

1 *B badullensis*, Castellani, 1913 Isolated from normal motions and cases of chronic enteritis in Ceylon by Castellani

2 *B neapolitanus*, Emmerich, 1884 First found in human fæces by Emmerich in Naples and has been found by Castellani in normal motions in Ceylon, by Archibald in the Sudan, by Clemensha in India, and in cow and goat dung in the Sudan by Archibald

3 *B oxytocus* (Wyssokowitsch) Flügge 1886 Originally isolated from stale milk and called *B oxytocus perniciosus* and found in the stools of ankylostome patients in Ceylon by Castellani, in human fæces in India by Clemensha

4 *B paraenterious*, Castellani Found in human fæces in Ceylon by Castellani

5 *B pseudocoli*, Castellani, 1909 Found in the motions of patients suffering from ankylostomiasis in Ceylon

(b) *Dulcitol not fermented*

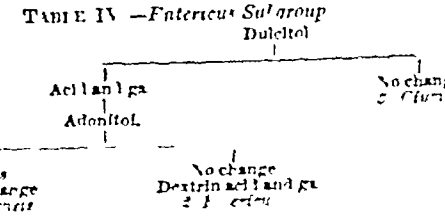
6 *B coscoroba* Said to be first described in the *Annales de l'Institut Pasteur* for 1900 as being isolated from an epidemic occurring in a breed of swans called *Cygne de Coscoroba* and described by Clemensha as occurring in human fæces in India and by Archibald in the Sudan

TABLE III —*Differential Table of the Members of the Enterious Subgroup*

Classification	Monosaccharides				Di saccharides		Poly saccharides		Glucosides		Alcohols						Phenol	Other reactions		
	Hexoses		Pentoses																	
Names	Lævulose	Galactose	Arabinose	Rhamnose	Maltose	Saccharose	Dextrin	Inulin	Amygdalin	Salicin	Glycerol	Erythrol	Adonitol	Dulcitol	Mannitol	Sorbitol	Inosite	Motility	Litmus milk	Indol
B enterious Castellani 1909	A G	A G	A.G	—	A G	0	A.G	0	—	—	—	—	0	A G	A.G	A G	—	0	0	+
B giumai Castellani 1913	A G	A.G	A G	A.G	A G	0	A G	0	0	A G	A	0	0	0	0	A G	0	0	A	+
B khartoumensis Chalmers and Macdonald 1916	A G	A G	A G	A G	A.G	0	0	0	0	A.G	A G	0	A G	A G	A G	A G	0	0	A	+

These differences will be referred to in greater detail when we define *B khartoumensis* and all that need be done at present is to give a diagnostic table

TABLE IV —*Enterious Subgroup*



It will be noted that Durham's *B communis* is really referable to a series of and not to a single organism

II Durham's Communis (Saccharose non fermenting) Section

(a) *Dulcitol fermented*

1 *B carinida* Brieger 1895 First obtained by Brieger in human fæces in Europe and found by Clemensha in India

2 *B coli* Escherich 1885 This is the well known *B coli communis*

3 *B selgeri* von Freudenreich 1890 Found first in cheese in Europe by Archibald in human and bovine fæces in the Sudan by Clemensha in human fæces in India and by Castellani in Ceylon

(b) Dulcitol not fermented

4 *B acidi lactici* Hueppe, 1884 First found in milk, and ibsequently by Clemensha in human fæces in India and by astellani in Ceylon

5 *B vesiculosus*, Henrici, 1894 *Discovered in cheese by* enrici and subsequently found in human fæces in the udan by Archibald, and by Clemensha in India

6 *B grünthal*, Castellani Found by Castellani in human ces in Ceylon

B Smith's Indol Non Producing Division

I Durham's Communior Section

1 *B aerogenes* Escherich, 1886, which is often called lactis aerogenes and was found in the human alimentary inal in Europe and subsequently in India by Clemensha

2 *B nasoformans*, Eisenberg 1891, which was first iscovered in water but later was recognised in human ces in India by Clemensha

grown on lactose media forms tubercle-like colonies which are red and white

5 *B tropicalis* Castellani, 1910, which was first isolated from human fæces in Ceylon

A method of differentiation of these various organisms is set forth in Tables V, VI, and VII

After considering the above analysis it is obvious that if the importance of the non fermentation of the trisaccharide raffinose had not been realised or if that sugar had not been available we should have considered that *B Khartoumensis* was closely allied to those organisms which are shown in Table VI and especially to *B schafferi*, which is still very imperfectly known It would, however, have differed from this organism in not clotting milk and in fermenting adonitol We therefore are of the opinion that even when compared against the raffinose-fermenting Colon Subgroup

TABLE V —*Escherich's Colon Subgroup*

A Smith's Indol Producing Division

I *Durham's Communior (Saccharose fermenting) Section*

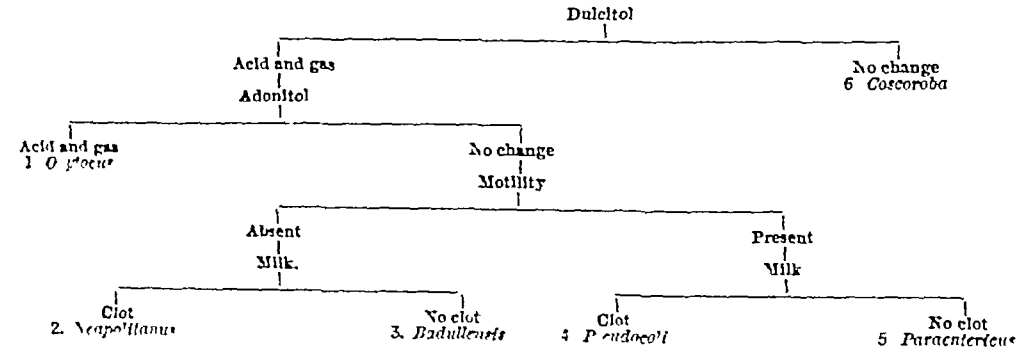


TABLE VI —*Escherich's Colon Subgroup*

A Smith's Indol Producing Division

II *Durham's Communis (Saccharose non fermenting) Section*

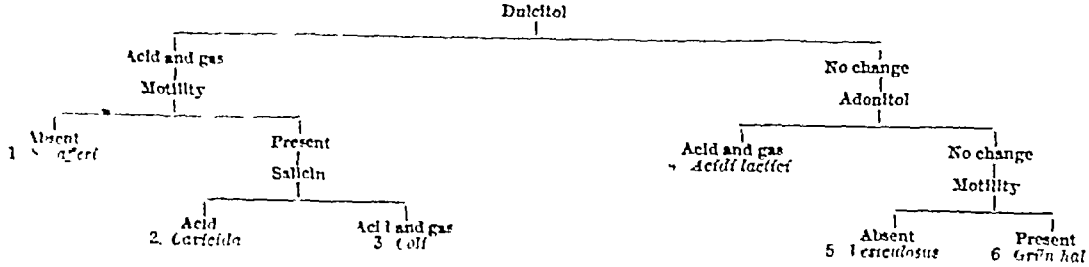
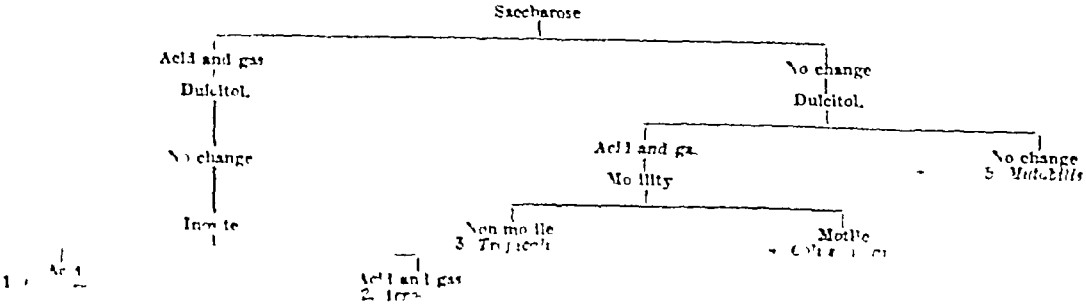


TABLE VII —*Escherich's Colon Subgroup*

B Smith's Indol Non Producing Division



II Durham's Communis Section

[illegible] Norman Hall which is known as [illegible] Norman Hall and which we have brought into [illegible] nomenclature It must not be confused [illegible] Sternberg [illegible] Germano [illegible] has not to be distinguished from [illegible] [illegible] reference as to [illegible] original reference [illegible] [illegible] Macfadyean [illegible] in the [illegible] [illegible] as a soluble [illegible] which when [illegible]

it appears to be a distinct organism and we will therefore now proceed to our deductions on the work given above

Conclusions

By means of a study of the above schemes and tables of classification it will be seen that *B Khartoumensis* Chalmers and Macdonald 1916 can be differentiated from the more important members of the Colon Subgroup and that it belongs to the Enterica Subgroup which can be easily distinguished from the other Typhoid Colon Subgroups

As regards the Enterica Subgroup it can be distinguished from *B giuma*, Castellani 1913, by not producing acid and gas in dextrin and by producing acid and gas in glycerol, adonitol, dulcitol, and mannitol and from *B enterica*, Castellani, 1909 by not fermenting dextrin and by producing acid and gas in adonitol and acidity in litmus milk.

We therefore conclude that it is a distinct species and we define it as follows "A short, non motile, homogeneous, non encapsulated Gram negative bacillus with rounded ends, which produces a whitish, non fluorescent growth under aerobic and anaerobic conditions upon agar agar at 37° C, and on gelatin, which is not liquefied, at 20° C and which is capable of producing acid and gas in glucose, lactose, adonitol, dulcitol, and mannitol, but not in saccharose raffinose or dextrin, and which gives rise to acidity without clot in litmus milk and is also an indol producer It was isolated from the fæces of persons suffering from an enteric like fever in Khartoum and Omdurman "

It failed to agglutinate with a colon specific serum of high titre but it showed group reactions with high titre paratyphoid A and B specific sera It is therefore related not merely to the Colon Subgroup but to the Paratyphoid-Gaertner Subgroup and we consider it and possibly the whole Enterica Subgroup to be connecting links between these two collections of organisms

As it was present in the patients' fæces during the illness and absent after recovery and as it agglutinated with the patients serum even though we were unable to obtain it from the peripheral blood during the attack, we consider that it was the causal organism of the attacks of *enteric like fever*, using this term in its broadest sense

It gives us much pleasure to acknowledge the trouble taken by Dr Papatheodorou, of Khartoum, and Dr Muzhir, of Omdurman, in providing us with material for this paper

References (Arranged in Alphabetical Order) —Alexander (1914): Supplement to the Annual Report of the Local Government Board 384-400 London Archibald (1911): Fourth Report Wellcome Tropical Research Laboratories Medical 319-334 London Browne (1914): Journal of Infectious Diseases xv 580-604 Chicago Castellani (1902-1914): Ceylon Medical Reports Colombo (1907) Journal of Hygiene vii 1-12, Cambridge (1909-1913) Reports of the Advisory Committee for the Tropical Disease Fund London (1912) Journal of Tropical Medicine and Hygiene xv 164-165, London Castellani and Chalmers (1910) Manual of Tropical Medicine 991 (1913) Ibid. second edition 1380-81 London Clemensha, Aiyar and Mudaliyar (1909): Bacteriology of Water Supplies in Tropical Climates Madras Fitzgerald (1914): Journal of Infectious Diseases xv 268-278 Chicago Jackson (1911): Ibid viii 241-249 Kligler (1914): Ibid xiv 21-86 187-204 MacConkey (1905): Journal of Hygiene v 333-379 (1906) Ibid vi 385-407 (1909) Ibid ix 86-103 Cambridge Perkins (1904): Journal of Infectious Diseases i 241-267 Chicago Rogers Clarke Mansfield Davis and Brooke (1914): Ibid xiv 411-475 Smith (1915): Brit. Med. Jour ii July 3rd 1-5 London

THE GANGRENE OF WAR GASEOUS CELLULITIS OR EMPHYSEMATOUS GANGRENE

BY ALFRED J HULL, F R C S ENG,
MAJOR, ROYAL ARMY MEDICAL CORPS.

THE most common form of gangrene met with in the present campaign is an acute infection due to the bacillus of malignant œdema the Bacillus aërogenes or Bacillus perfringens The actual cause of gangrene is the presence in the wound of the pathogenic organism which finds a suitable medium in which to grow in the lacerated and devitalised tissue of gunshot wounds In its most typical and dangerous forms gas gangrene occurs associated with deep wounds, the infection being carried into the tissues by the missile which inflicts the wound It is therefore a primary and deep infection Once the wound is infected the occurrence of gangrene is favoured by several conditions 1 Delay in cleansing the wound and removing the foreign body 2. Excessive damage to the tissues and the presence of necrosed tissue and blood clot. 3 Interference with the blood supply The tension produced by the effused blood the gas, and other products of inflammation produce a vicious circle 4 The presence of pus-forming organisms This virulent infection may attack any gunshot wound and forms one of the outstanding dangers to which injuries are subject in war The complication of an injury by emphysematous gangrene is usually discovered two or three days after the injury but it may begin within a few hours A septic wound cannot be considered safe from attack until the wound has become clean and healthy Cases have occurred in comparatively small and unimportant wounds

The following forms of the disease are fairly distinct but it must be understood that these varieties are grades of the same disease, passing from one to another They are grouped here because they form more or less distinct clinical entities requiring entirely different prognosis and treatment

1 *Anaerobic Infection without Gaseous Cellulitis*

In this type there is, as yet, no definite spreading cellulitis nor gas in the tissues, but there is discolouration of the skin and gas in the discharge from the wound with characteristic odour This type, if untreated, goes on to gaseous cellulitis, of which it is really an early stage

2 *Gaseous Cellulitis*

This may be local or diffuse The local variety is fairly amenable to treatment. The infection commences with a local cellulitis with a spread of gas in the tissues, and is usually associated with a deep septic wound Compound fractures of large pipe bones contribute a high proportion of the cases, and those with fracture of the femur yield the most fatal results In the local form the cellulitis is limited to the neighbourhood of the wound and apparently has no tendency to spread to the rest of the limb These cases react well to the simple treatment of multiple incision and some would no doubt recover without special treatment They account for the majority of successful cases and have made the reputation of several remedies In the diffuse form the cellulitis involves the whole limb and often spreads to the deep tissues of the limb and the trunk The skin around the wound is discoloured but the more distant skin is unchanged The skin may be mottled with blue, purplish, or grey blotches but never presents the bright colour seen in ordinary cellulitis The limb is very much swollen and is œdematous The tissues which are permeated by the gas yield a crackling sensation to the touch similar to that found in surgical emphysema The circulation in the hand or foot is not affected until quite late The cellulitis appears to be mainly confined to the subcutaneous tissues, the gas penetrating the cellular tissue in advance of the cellulitis The patient's general condition is soon affected unless the cellulitis is limited to a small area There is profound toxæmia with a rapid pulse of small volume the hands and feet are cold and vomiting and hiccough often occur In spite of this the patient may not complain of feeling very ill.

Treatment —The treatment of the wound does not differ from the treatment of other septic gunshot wounds The wound should be freely opened and all devitalised tissue excised The missile should be removed and the wound searched for other septic matter, such as fragments of clothing Very free drainage in a dependent position should be provided The cellulitis whether local or general should be treated by numerous incisions into the subcutaneous tissues In a local case affecting the calf of the leg, three or four incisions several inches in length should be made down to but not through the deep fascia. In addition to these deep incisions half a dozen two-inch incisions through the skin, just entering the superficial fascia should be made The wound may be dressed with hypertonic saline solution The infection being an anaerobic one and mainly limited to the cellular tissue the injection of hydrogen peroxide into the cellular tissue at a point proximal to the cellulitis has been undertaken with a view to checking the advance of the disease About 20 c c of a ten volume solution is injected by means of a syringe into the circumference of the limb above the infection The necessity for this is not established Collapse sloughing and other bad results have followed this treatment If the infection be localised and the patient's general condition good arm or leg baths of peroxide of hydrogen may be given Usually the limb is left exposed and continuous irrigation with 5 per cent saline solution employed If not effectively treated the gaseous cellulitis may advance to a massive gangrene of the whole limb the milder form passing into the more fatal one with the greatest rapidity The pulse becoming imperceptible in the extremity of the limb the hand or foot becoming cold or numb are indications for immediate amputation

3 *Localised Gangrene*

Around a septic wound a gaseous cellulitis occurs, and bubbles of gas may be detected in the pus coming from the wound. The skin surrounding the wound becomes mottled-purple in colour, and emphysematous crackling can be felt for a short distance beyond the gangrenous area. The case may remain one of localised gangrene or may be overcome by the infection and pass into a case of gangrene of the limb Extremely foul, dirty fluid containing bubbles of gas, exudes from the wound but typical pus is absent or obscured by the gangrenous discharge An orange coloured discharge, which stains dressings, is sometimes present A large number of wounds secrete pus or discharge containing bubbles of gas, although gas is not actually present in the tissues These wounds recover if treated early by the ordinary method of treatment without extensive operation In some cases the "gas" has been sucked in owing to movements of the limb The "gas" is not mixed with the pus in the same way in these cases and the characteristic odour is absent

Treatment —The devitalised tissues should be excised, and the usual cleansing and drainage operation should be performed on the wound if it has not already been done Multiple incisions should be made in the emphysematous area Hypertonic treatment gives good results The discoloured area should be marked, and if after such treatment it is found to be spreading, amputation should be performed If the hand or foot is found to be cold and numb and pulseless, it is dangerous to wait until further spread of the local gangrene takes place and amputation should be performed Sometimes free incision of the calf will restore the circulation of the foot In such cases the feeble circulation is due to the pressure of the exudate on the vessels under the deep fascia.

Illustrative case of localised gangrene (Fig 1) —Sergeant ——, wounded on March 2nd with a fragment of high-explosive shell, entrance wound on the outer side of the leg about middle of fibula, no exit found Wound dressed at field ambulance and patient arrived at base on March 4th Leg swollen and painful and œdematous over tibia large red patch over middle of calf, extending round to inner side of leg X rays showed shell fragment in calf muscles and comminuted fracture of fibula Entrance wound was excised and shell fragment removed Incisions were made over the inner side of the leg through extending red patch and in middle of calf Small quantity of gas and pus escaped and calf muscles felt soft and spongy The wounds were well irrigated with eusol and tubes were inserted Temperature 100° F (fell to 98 4°) pulse 110 (fell to 96) The pus showed B aërogenes capsulatus and streptococci The patient made a good recovery

FIG 1

Gas gangrene of calf (localised) Entrance wound on outer side of leg margins grey and [illegible] shading [illegible] area of [illegible] gangrene around large black [illegible] patch on [illegible] grey [illegible] area of [illegible] [illegible] [illegible] light [illegible]

4 *Massive Gangrene*

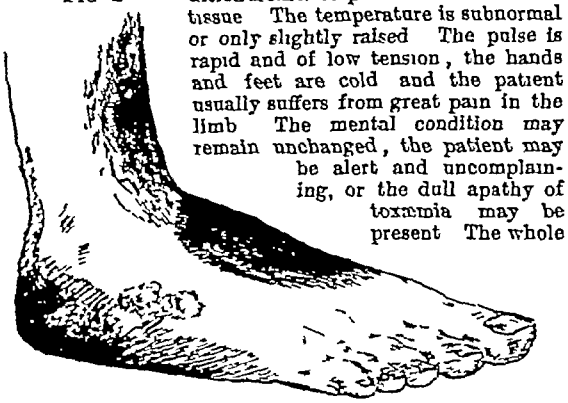
This corresponds to the distribution of a vessel and may affect part or the whole of a limb The organisms develop in the part which is rendered anæmic by damage to the blood supply of the infected area Examples of this type may be found in gangrene affecting the gluteal rectus femoris the adductor, and hamstring groups of muscles

Illustrative case of massive gangrene (Fig 2) —Private —— wounded on March 5th with shrapnel first and second metatarsals comminuted shrapnel passing back, fracturing os calcis and having exit wound in heel The wound was packed with cyanide gauze and the patient transferred to the base on March 7th The foot was very much swollen and had two bullæ on the dorsum The inner side of the foot was black with grey patches while the ankle joint was red and œdematous There was a foul smelling discharge containing gas from the wound, which contained B [illegible] Amputation was performed at the [illegible] of the leg by the open method The patient made a [illegible] recovery

5 *Gangrene of the Limb*

The infection is usually apparent within the first three days after the receipt of the injury Massive gangrene of the whole limb develops and the limb dies *en masse* The process is extremely rapid a marked change taking place within a few hours On several occasions a limb which has been considered healthy in the evening has been discovered to be affected with diffuse gangrene the following morning The patient is in a highly toxic condition from absorption from the affected tissue The temperature is subnormal or only slightly raised The pulse is rapid and of low tension, the hands and feet are cold and the patient usually suffers from great pain in the limb The mental condition may remain unchanged, the patient may be alert and uncomplaining, or the dull apathy of toxæmia may be present The whole limb becomes swollen and tense and no pulse can be felt in the extremity, and the hand or foot is cold and numb The skin is at first grey white, then mottled grey, green, yellow, purple, and finally black The infection commences in the neighbourhood of a septic wound, often associated with a septic compound, comminuted fracture The gangrene spreads with great rapidity the gas diffusing in the cellular tissues, especially beneath the skin and along the course of the great vessels A crackling sensation can be obtained upon palpation above the actually gangrenous area of the limb, the subcutaneous gaseous cellulitis rapidly spreading to the abdomen or chest The patient may die of toxæmia before the limb has actually become gangrenous, or even before the gangrenous areas have appeared

FIG 2



Gas gangrene of foot *en masse* The dark shading on dorsum and inner side of foot shows the dead gangrenous area in the region of entrance wound while around the exit wound in heel the same is represented The bullæ are seen just below the ankle-joint while the lighter shading extending up the leg marks an area of acute congestion

Illustrative case of gangrene of limb —Private —— was admitted to a base hospital suffering from a gunshot wound of the left arm The wound was of the explosive type, probably inflicted at close range The entrance wound was small the exit wound, over 4 inches in diameter, was lacerated There was a severely comminuted fracture of the humerus with great destruction of bone and spicules of bone protruded from the ragged sloughing wound A foul smelling dirty grey coloured discharge containing bubbles of gas exuded from the wounds Around the wound for several inches the tissues were black and gangrenous, the whole of the limb was intensely swollen, massive gangrene extended up to the axilla, the skin on the inner side being of a mottled green Above the gangrenous area, extending into the axilla and chest on either side and on to the shoulder above, crackling could be felt on pressure The outer arm was mottled greyish brown up to within 3 inches of the acromion The forearm and hand were swollen with tense œdema, mottled greyish green cold and pulseless The patient's condition was very unfavourable the pulse was small and running the temperature was 100° F, the tongue was dry and furred and the face drawn and anxious Open ether was administered preceded by atropine gr 1/100 and morphia gr ¼ An intravenous saline injection was begun before the operation The subcutaneous tissue above the gangrenous area was infiltrated with a 10-volume solution of peroxide of hydrogen A circular incision was made on a level with the lower margin of the axilla on the inner side and about 3 inches below the acromion process on the outer side the incision passing through tissue infected with gaseous cellulitis The circular incision was carried right down to the bone while the subclavian artery was compressed After raising the deltoid the humerus was disarticulated at the shoulder The wound was left open and dressed with saline solution no sutures were used The patient suffered severely from shock after the operation Rectal injections

of saline were given during the night After the first 48 hours' extreme prostration the patient's condition improved Continuous saline irrigation was instituted, the wound being dressed only with a layer of gauze A crescentic shaped area of tissue which formed the outer flap became coal black in colour This piece of tissue demarcated immediately below the acromion and separated eight days later The wound granulated and rapidly became healthy It is possible that the sloughing of the flap was due to the infiltration with hydrogen peroxide This has been omitted in more recent cases with equally good results The shock would have been less in all probability had the amputation area been infiltrated with local anæsthetic solution

6 *Metastatic Gaseous Gangrene*

The above condition has been observed The gas infection occurs at a part distant from the wound This exceedingly rare form of infection is presumably a blood infection

Prevention and Treatment

The means of preventing gas gangrene will be gathered from its causation An early cleansing and drainage operation and the removal of missiles, searching examination for concealed septic pieces of clothing, and the efficient drainage of wounds are the primary means of its prevention The enlargement of apparently clean wounds in cases of fracture of large pipe-bones is advisable where there is any sign of tension and swelling The interference with the circulation will be obviated by avoiding the use of tourniquets and tight bandages and by efficient splinting which corrects the deformity of fractures The use of strong antiseptics is to be deprecated, and weak antiseptics will have no effect upon the resistant organisms

The treatment of gas gangrene is dependent upon two principles First, the drainage of subcutaneous tissue by means of free incisions in order that the products of inflammation may escape and the spread of infection to the deeper parts may be prevented The forms of gangrene limited to the cellular tissues will usually react well to this treatment Secondly, the excision of all necrotic tissue By excision of all necrotic tissue is meant that irrespective of anatomical consideration the necrotic area must be completely excised and, in the more severe cases, amputation is the only possible mode of effecting complete excision

When in the presence of compound fracture, gas is found to be issuing from the wound and the skin is becoming grey and mottled and the hand or foot is cold and numb amputation should be performed without delay, as it is of the utmost importance to amputate before the patient is dying of toxæmia The disease is an extremely fatal one in any case, and calls for recognition and amputation at an early stage The only form of amputation which can be considered is a direct circular amputation The amputation should be performed above the infected tissue if possible Some cases have recovered in which this has not been possible the gaseous cellulitis having already spread to the trunk Extension of gas to the trunk does not negative amputation Amputation should in such cases be performed through the gas infiltrated tissues and the remaining infected tissues treated by free incisions A tourniquet is applied, and in order to obviate shock as much as possible a circular infiltration of all the tissues is made around the whole circumference of the limb with novocaine adrenalin solution

Several methods of combating the shock of an amputation are available and, since the amputation for gaseous gangrene has to be performed when the patient is in a very toxic condition and very subject to shock, it is essential that one of them be employed Infiltration of the cauda equina and sacral nerves by introducing 20 c c of novocaine solution slowly into the sacral canal through the terminal foramen, the horns of the last piece of the sacrum being the guide to the aperture is a good method and strongly advocated by some surgeons Blocking the main nerve trunks by injecting them with local anæsthetic solution is a well known method Spinal anæsthesia is perhaps the best method I have found the local infiltration of the tissues to be divided with special care in injecting the great nerve trunks a most satisfactory method No local ill effects or gangrene have followed the infiltration Saline solution is usually given into a vein during the operation All the tissues are divided at the level to which the skin retracts after the circular skin incision has been made No sutures are inserted by this method and free drainage is obtained The wound is dressed with hypertonic saline solution applied on gauze After the first few hours constant irrigation is applied to the gauze from an irrigator

CARDIAC SYMPTOMS FOLLOWING DYSENTERY AMONG SOLDIERS

BY E B GUNSON, M D EDIN, M R C P LOND
CAPTAIN, R A M C, ATTACHED HAMPSTEAD MILITARY HOSPITAL

THE present paper is based upon notes of 65 consecutive cases of dysentery admitted to the 19th General Hospital Alexandria, from Gallipoli in October, 1915 The cases were typical of several hundred admitted to the hospital over a period of several months

Severity and nature of the disease —Practically all the cases were examples of severe infection, all gave a history of the presence of blood in the stools persisting for several days, the blood still being present on admission in a large proportion of the patients No bacteriological examination of the stools was carried out, but on clinical grounds 75 per cent were judged to be amœbic, the remainder bacillary in type

Past history —There was a history of rheumatic fever in 6 per cent

Control of the patients —After admission the worst cases some of whom were unable to walk or stand owing to extreme exhaustion, were kept in bed entirely The remainder, including some patients who were still passing blood, often had perforce to rise and walk to the lavatory a distance of 20 yards from the ward This necessitated rising, in some cases as often as 30 times during the first 24 hours after admission, and the exertion called for in patients still profoundly weak must be regarded as an important factor in increasing the effect of the disease upon the heart Even more important, probably, in this connexion is the fact that the majority of the patients continued in the trenches for many days after the onset of dysentery, they often reported sick only when they were completely exhausted

Drugs —All the patients received two courses of subcutaneous injections of emetin, in half grain doses twice a day for four days In the severe bacillary cases anti dysenteric serum was used Hæmorrhage from the bowel diarrhœa, and pain were treated symptomatically

Circulatory System

The symptoms and physical signs varied with the severity of the disease.

A *Fatal cases* —There were three fatal cases in the present series, but many others were observed The circulatory disturbance was profound The patient was pale The extremities were cold and clammy The pulse was small and feeble at times imperceptible at the wrist with a rate of about 100 per minute Premature contractions (extra systoles) were occasionally met with Cardiac dilatation followed the extreme enfeeblement of the pulse within 24 or 48 hours in rapidly fatal cases and was accompanied by marked venous congestion especially of the head and neck In less rapid cases the cardiac dilatation and enfeeblement were delayed for several days after the peripheral circulation had first failed as there were not infrequently marked remissions in the peripheral failure of which the state of the pulse and the cold clammy extremities were evidence There was usually slight enlargement of the liver The condition of the patients presented a striking resemblance to that met with in toxic cases of diphtheria. The primary change was apparently a vaso-motor paralysis followed by cardiac dilatation and enfeeblement of heart sounds

B *Non fatal cases* —This group is of special interest as in not a few cases of so-called "soldier's heart" the onset of symptoms dates definitely from an attack of dysentery

1 *Acute stage* —In some cases a condition approximating to that described above was met with and persisted for several days In other cases the pulse remained of good strength and no signs of circulatory failure occurred

2 *Convalescent stage* —In practically all cases the symptoms of general weakness and exhaustion met with during convalescence from any severe infectious disease when patients are first allowed up were present However unlike many other diseases convalescence from dysentery is associated in a number of cases with persistent symptoms of circulatory inefficiency such as a sense of exhaustion dyspnœa palpitation and giddiness after very moderate exertion which lasts for several weeks and in some cases for several months

(a) *Patients with mild and transitory symptoms* —In about half the cases it was found that even when the blood had disappeared from the stools, and the temperature had returned to normal the exertion of walking to the lavatory was accompanied by a sense of exhaustion, slight dyspnœa, and palpitation The symptoms were mild, persisted for a few days only, and were unaccompanied by any sign of cardiac inefficiency

(b) *Patients with persistent symptoms* —Eleven cases of the present series (17 per cent) presented persistent symptoms of cardiac inefficiency for a long period. The symptoms were still present on the patients discharge either to England or to convalescent hospitals in Egypt, although on an average 17 days had elapsed since blood had disappeared from the stools and the evening temperature was no longer raised. There was no history of rheumatic fever in any of these cases

Pulse —The pulse was of full volume and regular The average rate at rest, was 95 per minute

Cardiac dullness —The area of cardiac dullness was appreciably increased to percussion in all these patients, transverse cardiac dullness measuring 15 cm and over The average for patients who presented no symptoms was less than 13 cm In addition there was usually an increased area of præcordial pulsation and in three cases the apex beat was in the sixth space

Auscultation —The heart sounds were usually sharp and clear In one or two cases the first sound at the apex was muffled and toneless A systolic murmur was present in two cases The liver and spleen were not appreciably enlarged.

Symptoms —Dyspnœa —Six patients complained of dyspnœa on walking 30 yards on the level, the remainder developed dyspnœa whenever they climbed a short flight of stairs

In addition to dyspnœa, all complained of one or more of the following symptoms while walking on the level Præcordial pain, 4 patients, vertigo 5, palpitation, 2, and sense of exhaustion 2. The exertion of returning by a ramp, from the dining hall on the ground floor to their ward on the second floor produced such marked symptoms that none of these patients was able to attend the dining hall up to the day of his discharge to England as a convalescent

Special Treatment

The only drug found to benefit the extreme cardiac weakness met with in the severe cases was adrenalin, and this drug was given in doses of from 5 to 10 minims every four hours subcutaneously The immediate effect was practically always to increase the volume and force of the pulse and to lessen the degree of pallor or cyanosis for 10 to 15 minutes while a feeling of well being was induced which often lasted for one hour In collapsed cases subcutaneous saline injections were of temporary benefit

Summary and Remarks

1 In a series of 65 cases of dysentery 3 fatal cases all presented signs of considerable circulatory embarrassment The pulse became extremely feeble and at times was imperceptible at the wrist The extremities were cold and clammy In the terminal stages cardiac dilatation occurred and was associated with extreme cyanosis particularly of the face head and neck Temporary relief of symptoms was afforded by adrenalin

2 Of the patients who recovered 17 per cent presented symptoms of circulatory inefficiency persisting into the third week of convalescence when the patients were transferred to England Dyspnœa palpitation præcordial pain vertigo and a sense of exhaustion were the chief complaints The exhaustion met with in the severe cases was greater than the muscular atrophy and weakness seemed to justify though there was no evidence pointing to organic disease of the central nervous system.

3 The high incidence of persistent cardiac symptoms is attributed mainly to the fact that the majority of the patients continued on duty in the trenches until completely exhausted and her factor was the exertion of walking to the lavatory necessary even during the early stages of the disease owing to the exigencies of active service

4 Cardiac symptoms during convalescence from dysentery are of importance in relation to soldiers hearts as dysentery undoubtedly contributes a certain number of cases to this group

5 After a severe attack of dysentery adequate rest in bed should be allowed to obviate consequent cardiac derangement.

THE RADICAL TREATMENT OF GASTRIC ULCER

BY JOSEPH CUNNING, M B , B S MELB , F R C S ENG ,
SURGEON TO THE ROYAL FREE HOSPITAL LATE SURGEON TO THE VICTORIA HOSPITAL FOR CHILDREN AND TO THE CANCER HOSPITAL.

FOR ulcer of the stomach gastro-jejunostomy has come had its day, and I hope will soon depart with its trail of people who have had bilious vomiting added to their previous misery That gastro-jejunostomy is marvellous in its effect upon pyloric stenosis from a healed ulcer, or congenital hypertrophic stenosis, is of course true, but in these cases one is dealing with mechanical conditions and not active ulceration Also it is perfectly true that some cases of gastric ulcer do get well after an anastomosis, but how frequent it is to see some unimproved or relapsing after a few months The very worst cases of all—those in which the ulcer is embedded in, and excavating the pancreas or some neighbouring organ—I assert are not in the least improved It is of no use to send a patient out of hospital free of pain, for the rest in bed will procure that, but the patient must be seen at intervals and remain free from pain to speak of cure

Gastro-jejunostomy has fallen into disrepute for several reasons 1. Because it frequently fails to relieve the symptoms 2. Because it is sometimes performed upon a pre-operative diagnosis of ulcer, when the real cause of the symptoms lies elsewhere, as for instance in a diseased appendix. 3 Because it may add to the patient s former troubles bilious vomiting or jejunal ulcer These conclusions have been gradually enforced upon thinking surgeons, and I am sure that gastro-jejunostomy for the cure of gastric ulcer will be entirely given up

Sir John Bland-Sutton in his Hunterian lecture, "Ulcers New and Old,"[1] has shown that the only certain way of curing duodenal ulcer is by pylorectomy with restoration of the continuity between the stomach and duodenum if possible For the past six years I have performed excision of simple gastric ulcers in all cases with but few exceptions The exceptions have been where the ulcer involved surrounding structures, and it seemed the wiser plan to give the patient a chance with the slighter operation of gastro-jejunostomy rather than submit him or her to the more formidable operation of excision of the ulcer But it was in just these cases that absolutely no relief was obtained, and therefore something further had to be attempted

Since August, 1914, when I adopted a method which, so far as I know is original I have not met with any case of simple gastric ulcer in which the *ostrich device* of gastro-jejunostomy has had to be resorted to In most cases the gastric ulcer is situated on the lesser curvature or posterior wall Sometimes the ulcer spreads down both the anterior and posterior walls In the ordinary case after the gastro-hepatic omentum has been divided, the coronary artery ligatured on either side of the base of the ulcer, it is perfectly easy to remove a small wedge surrounding it and then unite the cut margins of the stomach by two rows of stitches The nearer the ulcer is to the cardiac end the greater are the difficulties but even then it is merely a question of sufficient retraction and exposure If the ulcer is in the neighbourhood of the pylorus it is better to perform pylorectomy and then unite the stomach to the duodenum If the lesion is a saddle-shaped ulcer—that is one perched on the lesser curvature and extending down both the anterior and posterior walls—or as in one of my cases an ulcer 2 inches wide completely encircling the stomach at its middle I prefer to remove that segment of the stomach and then unite the cardiac and pyloric remains This of course lessens the size of the stomach but as a stomach is a convenience and not a necessity this only ensures that the patient shall not overeat in the future

But now I come to the real problem and that is the case in which the ulcer is fixed to surrounding structures in such a way that it would seem too dangerous an operation to attempt to remove it In August 1914 I had to deal with such a case in which a year previously I had performed gastro-jejunostomy as I considered it unfair to submit the

[1] THE LANCET, Feb 1st 1913 p 237

patient to so big a risk as excision, for I had found that the ulcer, which was one of the saddle variety, deeply excavated the pancreas with a large area of surrounding infiltration (Figs 1 and 2) However, as the patient had obtained no relief and her life was a constant misery, I agreed to attempt removal After a thorough exposure

FIG 1

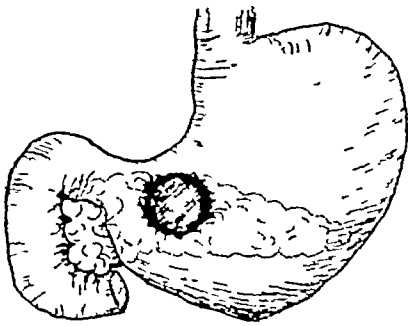


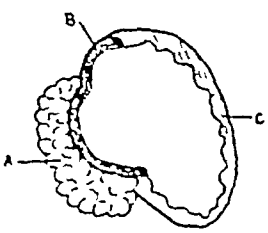
Diagram representing the stomach and pancreas seen through it with the ulcer shaded black where it excavates the pancreas

of the infiltrated part and an attempt at dissecting it out, it looked as if I should endanger the portal vein or the common bile duct and I did not care to face that, so then it struck me that I might detach the stomach from the ulcer by cutting around its margin, sew up the opening in the stomach, and then deal with the ulcer by scraping and cutting away its base in an endeavour to leave a sterile raw surface and not worrying whether it should become adherent to the stomach or not. (Fig 3) As it has turned out, though it is practically certain that the pancreas is adherent to the posterior wall of her stomach, she has had no troubles since the operation I have seen her recently looking a picture of health I have put this operation into practice in two cases since with equally good results

I have had no mortality from the cases of excision of gastric ulcers, though it involves a bigger operation than an ordinary anastomosis, and the results have been good in all This contrasts well with gastro jejunostomy which frequently fails to relieve the symptoms

Gastro-jejunostomy performed upon a pre operative diagnosis was more frequently done in the early days of the operation, and may still be done by people new to gastric surgery Unless there is a definite ulcer whose infiltrated margin can be felt I do not consider there is any justification for assuming its existence, and it is in just such cases if gastro-jejunostomy be performed, that patients have bilious vomiting and possibly a jejunal ulcer added to former troubles I have had many such cases in which the true cause of the symptoms was a diseased appendix although all the symptoms had been gastric. Some of the patients have had hæmatemesis more than once, but the proof of the cause of their symptoms rests in their immediate restoration to health when the diseased appendix has been removed.

FIG 2



Vertical section through the stomach and pancreas with the ulcer shaded black A Pancreas B Gastro hepatic omentum C Stomach

It has been difficult to explain the rationale of gastro-jejunostomy for the cure of gastric ulcer Following upon the success of this operation for pyloric stenosis it was assumed that it acted as a drainage operation so preventing the food from irritating the surface of the ulcer This had to be given up when X ray evidence showed that food still passed to a considerable extent through the duodenum and that instead of the stomach emptying more quickly it emptied more slowly Then followed the explanation that the early entry of alkaline duodenal juice into the stomach through the new opening thus diminishing the hyperacidity was the true cause of the occasional good effects This left it open to Dr Hertz's query that if this were the whole truth, then why should not regular doses of sodium bicarbonate have an equally good effect? The answer to that was unsatisfactory

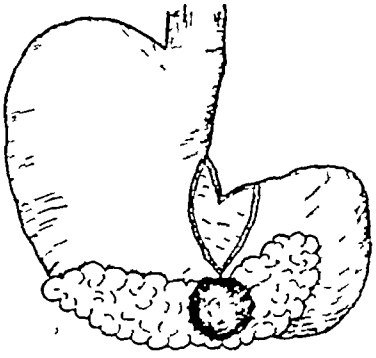
Then another line was chosen, not to explain the rationale but to improve the results and arguing that as the cases of pyloric stenosis which had been submitted to gastro-jejunostomy were invariably satisfactory, then the stenosis must have something to do with it, so exclusion of the pylorus was added to it To my mind the results were no more satisfactory in gastric cases though they certainly were when the ulcer was duodenal Surely excision of the ulcer is a more sound and practical operation than one based on such poor arguments and uncertain results as gastro-jejunostomy

That any operation will ensure non recurrence of an ulcer in the stomach is, unfortunately, not the case Certainly gastro-jejunostomy will not for in one of my patients a fresh gastric ulcer developed and I had to excise the gastro-jejunostomy to gain access to it She has since acquired a duodenal ulcer which I have had to operate upon

Jejunal ulcer is fortunately rare as a sequel but I have known it occur as early as four weeks after gastro jejunostomy It may appear as late as seven years after the operation

If it is true that carcinoma commonly follows upon gastric ulcer there is all the more reason for excision That this is so I, however seriously doubt though there are many authorities who assert it I rarely come across malignant ulcers of the stomach with a long previous history pointing

FIG 3



Posterior view of the stomach after it has been detached from the ulcer showing the latter on the pancreas

to chronic simple ulceration If chronic ulcer of the leg is to be used as an analogy I think it only proves how rare it is for a simple ulcer to become malignant. In fact the only chronic ulcer I know which frequently becomes malignant is that which occurs in chronic superficial glossitis, which is not on a par with other chronic simple ulcers

Summary —That gastro-jejunostomy is unsatisfactory as a method of treatment for gastric ulcer and may even add to the miseries of the patient That all gastric ulcers can be excised except those which are adherent to important structures in the neighbourhood, and that gastro-jejunostomy is useless for these When the ulcer is adherent to important structures the stomach can be detached from the base of the ulcer, the opening closed, and the base of the ulcer after being scraped and being now excluded from the stomach will give no further trouble

Wimpole-street W

MEDICINAL AND ECONOMIC PLANTS —The value in education of a study of these plants has been recognised for some time by Dr Jamieson Hurry, of 'Westfield' Reading A series of medicinal and economic plants have for several years past been grown in the garden and conservatories at 'Westfield' in order to enable those interested to become acquainted with their appearance Amongst the plants are tea coffee bananas olives pepper cinnamon cotton flax hemp arrowroot cinchona sugar papyrus, belladonna and stramonium By the side of the plants are arranged specimens of the economic products derived from them and used either for food for clothing or for medicine During each summer the garden and conservatories are thrown open at certain times to any persons who care to avail themselves of the opportunity for a study Demonstrations of the more important exhibits are given at intervals by Dr Hurry and his assistants

THE TREATMENT OF HÆMORRHOIDS BY INTERSTITIAL INJECTION

BY T BIRD, M R C S, M A OXON,

LATE ANÆSTHETIST TO KING EDWARD VII HOSPITAL, AND CONSULTING ANÆSTHETIST TO GUY'S HOSPITAL AND TO THE EAST LONDON HOSPITAL FOR CHILDREN

ALTHOUGH this treatment has a history of many years, I do not think it has received the attention that its success deserves It first came to my notice some eight or ten years ago through my old student friend and colleague, the late Sir James Goodhart Later, requiring some relief from hæmorrhoidal annoyance which was becoming a constant irritation I chose this treatment for the following reasons The prospect of complete relief in eight or nine visits each taking a quarter of an hour, very slight pain of no duration, and at the same time no interference with my ordinary life and work The only change that I noticed in the parts treated was an appreciable, but very slight, warmth. It is now some years ago, and I am still perfectly comfortable

I should like to state that this article was written prior to the appearance in THE LANCET of the articles on the same subject by Mr Arthur S Morley[1] and Mr F Swinford Edwards[2] I have thought it better to leave it as written, for in matters of detail there must necessarily enter the personal equation

Some critics have suggested that there is a likelihood of return This has not occurred in my own case or work, but if a part of the pile be left untreated it is likely to increase and I think this must have given rise to the idea of recurrence There can be no return in the part destroyed and in this opinion I am confirmed by Mr Dudley D'A. Wright, who kindly operated upon me and whose brochure on the subject anyone who means to take up the work should certainly procure

Pure carbolic acid as an injection into pile tissue was first used about half a century ago in the United States of America but through misuse the practice fell into abeyance Some 30 years ago it was resumed in a mitigated form by Dr Hoyt of New York. The deviations from his treatment in many hands seem to have caused disappointment perhaps through seeking more rapid or more complete success

Sir James Goodhart[3] speaks very strongly on the operations in vogue, and as I can confirm his remarks both by my own practice and that of over 50 years of anæsthetic work with first class surgeons, I cannot do better than quote him, with the remark that the forecast held out by the surgeon is not always realised by the patient —

Now why should I thus out of order put in a plea for the more frequent use of injection? I do so because I happen to have seen a good deal of the partial and poor successes of the common operations whereas the results of injection have seemed to me to be uniformly good

Some years ago I became very dissatisfied with the results of ligature More recently I have known of poor results by the Whitehead operation as well—first because the patient was laid up for several weeks secondly, because the shock of the operation may be very detrimental, thirdly because even within my own small experience I have known of cases of serious local trouble afterwards invaliding the patient for a long time fourthly I have many times found a definite membranous stricture at the anus where an operation has been performed, and lastly so many have told me that there has remained, more or less permanently after operation, a state of discomfort in one way or another that was by no means pleasant

Patients unfortunately do not seek relief until an acute "attack of piles" occurs This it is as well to palliate in the ordinary way until the inflammation or strangulation is relieved otherwise the treatment may be painful The best time for treatment is while the piles are giving no trouble An acutely inflamed external or strangulated pile may with relief be emptied of blood and then have three or four injections when injected the solution stops the bleeding and often relieves the pain immediately

If a treatment requires no private home or hospital for a fortnight or three weeks no anæsthetic no keeping to bed no pressure and no subsequent pain There is no stretching of the sphincter It is better to avoid spirits highly seasoned dishes, salt, and coffee, otherwise life may go on as usual. In many cases relief is almost immediate One patient of mine, a clergyman, whose life was a misery said on the third day, after the first piqûre, 'I have not had such a two days for six years" Subsequently in a note he thanked me for his "new life." Riding men, rowing men (I have seen all the seats in a college eight stained with blood) men from the trenches, and drinkers of Gallipoli water seem to be the chief sufferers amongst otherwise healthy men

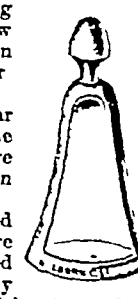
It is 50 years ago since I first had a hard external pile when captain and stroke of my college eight. I did not want to leave the boat, and wrote to Mr James Long professor of surgery at Liverpool to whom I was still indentured, asking what I could do under the circumstances The reply was worthy of a pupil of Abernethy 'Row on it until it bursts" I did, and I hope my crew never noticed the first ten minutes rowing each day, until the parts got warm The acutely expected event came off, and we made four bumps

The solution recommended and used by Hoyt consists of equal parts of hazeline and distilled water to which is added 10 per cent of pure carbolic acid, the whole of the acid is not dissolved unless warmed, the bottle must be shaken when the solution becomes turbid from the finely disseminated acid, and is then ready for use It should not be allowed to run on mucous membrane or skin as in both cases it gives rise to soreness I have had no trouble through carbolic acid absorption, though I have injected as much as 15 minims at one sitting

It is not only for hæmorrhoids that the treatment is useful (in my own case there was a polypus in addition to three hæmorrhoids), but also in cases of prolapsus ani I can look back upon some cases in old people that were treated by astringents which I should now treat in this way rather than with cautery or by incision—the uncomfortable alternatives

What are the disadvantages of the treatment? There are certainly two the number of visits and the passage of the anal speculum The speculum I have found to be best has been Kelly's sphincteroscope both for the first examination and the ensuing treatment but it should always be well warmed before insertion and well lubricated either with vaseline or lubifax, which is more easily washed off with water than vaseline

The Holborn Surgical Instrument Company have made me a self retaining speculum as Kelly's requires one hand to retain it during the injection by the other The illustration shows the bulbous extremity which passing through the sphincter retains it in position The windows vary, the one illustrated is a small speculum for ladies, and allows one to look for fissure or fistula before introducing Kelly's instrument Another has the window shaped to prevent the mucous membrane in front interfering with the view of the hæmorrhoid



It is better not to inject a pile near the junction of the mucous membrane and the skin or external to that line before the inner or upper portions have been treated

External piles (inflamed) should be allowed to subside under appropriate treatment before injection and the patient should be advised against taking wine and spirits and highly seasoned dishes and should be given medicine to produce soft evacuations A platino-iridium needle not too fine and about an inch and a quarter long is perhaps the best though I use a short stiff needle on a prolongation that fits on to the 'Record syringe as this gives a clear view of the length of the speculum Care should be taken to keep the needle in the long axis of the bowel and a slight side to-side motion as the plunger is pressed on tears the interior of the pile and if the needle is kept in for a few seconds there is seldom any bleeding After an injection or two the pile surface becomes hard so that future injections should be made between the old scars until the pile is completely treated An ordinary pile condition requires eight or ten piqûres, a commencing pile only one or two A soft, freshly formed hæmorrhoid may be injected with from six to ten minims, these are the ones that bleed most but there is no occasion to apply any styptic the carbolic acid and the hazeline being sufficient to control bleeding At the first visit I now give preference to injections of not more than three minims especially to

[1] THE LANCET March [illegible]

[2] THE LANCET April [illegible] Proctitis December [illegible]

ordinary county asylums, was approaching completion, and it was intended to remove the Council's Pathological Laboratory from Claybury to that establishment The report of Dr F W Mott, pathologist for the London County Asylums contains interesting particulars of investigations conducted under his direction during the year An inquiry as to the incidence of mental deficiency among the offspring of the insane in the London County asylums was continued during the year, and altogether the families of 588 insane patients were investigated According to the reports received from the education authorities it resulted that only 15 (i e, 2 to 3 per cent) of these had mentally defective children An investigation was also carried on into the family histories and environment of 60 mentally defective children in London special schools

Research was conducted by Mr Mann as to the "diagnosis of syphilis by the serum reaction" in order to estimate the incidence of syphilis in various types of the community and as a means of diagnosis in mental disorders, and a detailed summary of the results obtained is included in the Report of the Royal Commission on Venereal Diseases "Insanity in relation to the ductless glands and reproductive organs" was made the subject of systematic research by Dr Kojima (of Tokio), and previously by Dr Laura Forster In connexion with hypothyroidism Dr Mott remarks that this condition is more common than is generally supposed in women at the climacteric period Dr F Sano, superintendent of the Antwerp asylum for acute mental cases up to the time of the German occupation, has since been working in the Claybury laboratory aided by a grant from the National Health Research Committee, and has been investigating the cerebral mechanism of speech A number of brains, illustrating anatomical defects caused by various pathological lesions having been placed at his disposal, he utilised them to make serial sections and drawings, and to correlate as far as possible the ascertained lesions and peculiarities with the clinical symptoms observed during life Dr Fisher and Dr Beach have also collaborated with Dr Mott in other research work.

There is much of medical interest in the annual reports of the various asylum superintendents for which we recommend that this volume should be consulted—e g, statistics as to the etiology of insanity and investigations with regard to dysentery and other diseases prevalent in asylums Everywhere the male staff has been much depleted owing to the war, and it is greatly to the credit of the medical officers that notwithstanding their enhanced duties they continue to devote much time and energy to the training of nurses and attendants by lectures and demonstrations in preparation for the examination of the St John Ambulance and Medico-Psychological Associations

LIBRARY TABLE

A Text book of Nervous Diseases for Students and Practising Physicians In 30 Lectures By ROBERT BING, Dozent for Neurology at the University of Basel Only authorised translation, by CHARLES L ALLEN M D, Los Angeles California With 111 illustrations in the text London William Heinemann Pp 481 Price 21s net —The original German edition of this book was reviewed in THE LANCET of March 21st 1914 and it was stated that the originality and suggestiveness of the book would probably be best appreciated by those who already have a fair knowledge of neurology as a whole The opinion then expressed is confirmed after a consideration of the material in its English guise. The volume is lucid and readable and bears evidence of the clinical experience and erudition of its author, the lecture method of presentation, however suffers from certain disadvantages The English version bears very much less evidence of being done by a hack translator than has unfortunately been the case with several other American translations that we have had recent occasion to review The translator knows German and his subject

The After treatment of Operations A Manual for Practitioners and House Surgeons By P LOCKHART MUMMERY F R C S Eng B A M B B C Cantab Senior Surgeon S Mark's Hospital for Cancer Fistula and other Diseases of the Rectum Fourth edition London Baillière Tindall and Cox. 1916 Pp x-275 Price 5s net.—We are pleased to see that another edition of this book has been required, for we hold that in many cases the after treatment of an operation may be almost as important as the operation itself and a work like this is well calculated to be of immense value to those in practice, to resident medical officers, and to senior students The additions to the present edition are many and important especially the chapter on shock which has been completely rewritten in view mainly of Crile's work on the subject. A useful addition is the chapter dealing with gunshot wounds as many have during the war to deal with such wounds who have had little experience previously in this branch of practice

Studies in Blood Pressure Physiological and Clinical By GEORGE OLIVER, M D Lond, F R C P Edited by W D HALLIBURTON, M D Lond F R S Third edition London H K Lewis and Co 1916 Pp 240 Price 7s 6d net.—The author's untimely death prevented him from carrying to completion the present edition of his book The major part of it was entirely rewritten and ready for the printer and Professor Halliburton took upon himself the task of seeing his friend's book through the press adding a few footnotes where necessary, and reprinting certain omitted chapters from the 1908 edition, with the help of another old friend Dr Alfred Mantle, of Harrogate This third edition of the late Dr Oliver's work will be welcomed by all exact clinicians, for to these the measurement of arterial tension has become an everyday practice, which is the best testimony to the value of the author's life work

POOR LAW MEDICAL OFFICERS ASSOCIATION OF ENGLAND AND WALES —A council meeting was held at 9, Copthall avenue, E C, on July 7th, Mr A A Napper being in the chair The honorary secretary reported that he had been informed that a Poor law medical officer had been very unjustly treated by his guardians He is the medical officer to a Poor law infirmary which has no accommodation for the treatment of serious operations and when a patient suffering from obstruction of the bowels was brought to him for admission he sent him on to a hospital in the neighbouring city The friends of the patient were displeased and complained to the guardians, who resolved to pay an outside practitioner a fee of one guinea and deduct it from the salary of their medical officer The outside practitioner had attended the patient before his admission to the hospital It can hardly be questioned said the honorary secretary that this is quite beyond the legal powers of the guardians and the matter is now in the hands of the Medical Defence Union

The council then considered the nomination of officers and members of council for the ensuing year and decided that all the retiring officers and members of council should be recommended for re-election

The annual general meeting of the association was held later when the report of the council for the preceding year and the balance-sheet were put before the meeting and approved The officers and members of council who had held office during the last year were then nominated for the next year, and Surgeon General G J H Evatt C B was re-elected President, Dr Major Greenwood honorary secretary and Mr F Greenwood honorary treasurer Mr Withers Green was reappointed auditor

After the business of the annual meeting had been concluded the honorary secretary said that he wished to propose a resolution in respect of the action of the Government in reducing the payments for the notifications of infectious diseases from 2s 6d to 1s Many of our sister societies he said, 'have carried resolutions condemnatory of this action and the association should follow the example' He then moved the following —

That this meeting of the Poor law medical officers of England and Wales strongly condemns the recent action of the Government in reducing the fees for the notification of infectious diseases, this considering the value of the notifications and the great assistance rendered by them to the Government during the war, the value of which is exceedingly great and it is earnestly hoped that as soon as the war is over those bodies representing the medical profession will take all steps in their power to obtain redress for as long as these men

This resolution was put to the meeting and carried unanimously

IODARGOL

THE Specific of Gonorrhœa, Acute or Chronic

A Few Clinical Results

Two Cases of Acute Gonorrhœa —

We deem it our duty to draw attention to this action of **Colloidal Iodine**, since it brings about a rapid and certain cure in gonorrhœa and causes a disappearance of the gonococci, without in any way interfering with the integrity of the organs

Drs MIETTE and TRUFFIER.

A Case of Gonorrhœal Follicular Urethritis —

It has seemed to us of some interest to report this case on account of the result obtained, and above all, on account of the means employed for attaining it, for follicular abscesses of gonorrhœal origin, however they may start, always sooner or later acquire chronic symptoms, and we have never so far seen any but surgical treatment leading to a certain cure

The success which has attended our urethral dressings with **Colloidal Iodine** seems to give some promise that the necessity for the radical methods of surgical treatment in cases of urethral folliculitis of gonorrhœal origin may be somewhat reduced

By MARCEL DESCHAMPS late House Physician Assistant to Dr Bazy of the "Hopital Beaujon and JEAN PERRICAULT late House Physician of the Infirmerie Centrale des Prisons

Chronic Urethritis Subacute Urethritis Very Acute Urethritis

We are therefore justified in concluding that **Colloidal Iodine** should be accorded **front rank** among anti gonorrhœal agents, as much on account of the value and rapidity of its action as on account of its absolute harmlessness, which allows us to administer it without the slightest fear of any complication arising owing to its use

Dr GERALD BEXLER NANCY
late Interne of the Hospitals

Forms—

Amp of 2 c c Bougies Phials 20 and 45 c c Ovules

URASEPTINE

1907—1915.

The Most Powerful of Urinary Antiseptics.

Uraseptine is a granulated product entirely soluble in water, its bases being **Piperazine, Urotropine, Helmitol, Benzoates of sodium and lithium,** and containing 60 centigrams (10 grs) of active matter to each teaspoonful Dose 2 to 6 teaspoonfuls daily It purifies the urines, and this action is due to its three principal properties

1. IT IS A URINARY ANTISEPTIC.

2. A SOLVENT OF URIC ACID AND OF PHOSPHATES.

3. A MILD NON-TOXIC DIURETIC.

NOTE THE FOLLOWING POINTS —

1 The **Benzoic acid** and the **Benzoates** are transformed in the system into hippuric acid and consequently make the urine acid, which is necessary when the latter is alkaline and ammoniacal

2 Moreover, this acid medium is indispensable for the cleavage of the **Urotropine** (Hexamethylenetetramine), which thus furnishes a certain quantity of Formol, the bacteria destroying properties of which are well known

3 **Helmitol** (anhydro methylen, citrate of Hexamethylenetetramine) possesses not only the property of disinfecting urinary apparatus to a greater extent than Urotropine, but it also possesses sedative anæsthetic properties of utmost value in painful affections

4 Lastly, the **Piperazine** (diethylene diamine) will cause the rapid elimination of uric acid and urates in the form of soluble compounds

URASEPTINE is put up in bottles containing 3½ oz and 12 oz

NOT ADVERTISED TO THE PUBLIC.

Literature and Samples from—

AUSTRALASIA: A M BICKFORD & SON Ltd Adelaide
ELLIOTT BROTHERS Ltd Sydney and Brisbane
FELTON GRIMWADE & CO Melbourne
FELTON GRIMWADE & BICKFORD Ltd Fremantle

NEW ZEALAND: NEW ZEALAND DRUG CO Ltd Auckland Wellington Christchurch and Dunedin
INDIA: J MURRAY & CO Ltd — P O Box 533 BOMBAY P O Box 216 CALCUTTA P O Box 225 MADRAS
SOUTH AFRICA: LENNON Ltd

[illegible] — THE ANGLO FRENCH DRUG CO Ltd [illegible] 1311 Holborn] *Sole Agents for the British Empire* GAMAGE BUILDINGS HOLBORN LONDON E C [Telegrams Ampsalvas London]

LEWIS'S PUBLICATIONS.

SIXTEENTH EDITION (1915) REVISED AND ENLARGED

THE EXTRA PHARMACOPŒIA.

By MARTINDALE & WESTCOTT.

PRICE 21s net, postage 5d, abroad, 6d
Separately, Vol. I, 14s net, postage 5d. Vol II, 7s net, postage 3d

"It is a book that is indispensable to the modern pharmacist and in this case an old edition is not 'just as good'"—CHEMIST AND DRUGGIST 'A work of great utility"—THE LANCET
"The two volumes together form an invaluable compendium of information"—BRITISH MEDICAL JOURNAL
"The Extra Pharmacopœia maintains its high standard and more All interested will welcome this new edition of an indispensable book."—PHARMACEUTICAL JOURNAL
"This wonderful work an almost indispensable companion"—DUBLIN JOURNAL OF MEDICAL SCIENCE
"The medical practitioner in want of special information upon recent therapeutic advances may turn with confidence to the pages of Martindale & Westcott's Extra Pharmacopœia"—MEDICAL PRESS

JUST PUBLISHED A NEW (SEVENTH) EDITION Revised and Enlarged
With 1597 Illustrations Royal 8vo **32s.** net

MANUAL OF OPERATIVE SURGERY.

By J. FAIRBAIRN BINNIE, A.M., C.M.Aberd., F.A.C.S.,
Surgeon to the General Hospitals, Kansas City, Fellow of the American Surgical Association, &c

This Edition contains an Appendix on War Surgery

JUST PUBLISHED THIRD EDITION Revised and Enlarged Demy 8vo, 7s 6d net, post free 7s 11d, abroad, 8s 2d

STUDIES IN BLOOD PRESSURE. Physiological and Clinical.

By the late GEORGE OLIVER, M D Lond F R C P Lond
Third Edition Edited by Professor W D HALLIBURTON, M D

JUST PUBLISHED With 70 Illustrations Crown 8vo 4s 6d net post free 4s 10d

NOTES ON GALVANISM AND FARADISM

By ETHEL MARY MAGILL, M B B S Lond &c.
'A modest title for a good book"—DUBLIN JOURNAL OF MEDICAL SCIENCE.
Well designed for the purposes for which it is intended —BRITISH MEDICAL JOURNAL.

JUST PUBLISHED With Illustrations Crown 8vo 3s 6d net; post free 3s 10d

PRACTICAL POINTS IN THE DIAGNOSIS AND TREATMENT OF HEART DISEASE.

Being a New and Enlarged Edition of Heart Sounds and Murmurs their Causation and Differentiation"
By E. M BROCKBANK, M D Vict. F R C P
Honorary Physician Royal Infirmary Manchester &c.
We cordially welcome this book and recommend it to all practitioners and students of medicine"—DUBLIN JOURNAL OF MED SCIENCE.

With 86 Illustrations Post 8vo 8s. net; post free 8s 5d abroad 8s 8d

The Diagnostics and Treatment OF TROPICAL DISEASES

By E. R. STITT A B Ph G M D., Medical Director U S Navy Graduate London School of Tropical Medicine Head of Department of Tropical Medicine U S Naval Medical School &c
It contains a large amount of sound and up-to-date information."—THE LANCET

SECOND Edition Third Impression Post 8vo 6s net; post free 6s 5d abroad 6s 8d

Aequanimitas with other Addresses to

Medical Students Nurses, and Practitioners of Medicine
By Sir WILLIAM OSLER, Bart M D F R S
Regius Professor of Medicine University of Oxford &c
Written with all the breadth of view and the beauty of style which make Prof Osler's writings so characteristic and so valuable"—THE LANCET

With 228 Microphotograms 452 pp 25s net post free 25s 7d abroad 26s 3d

Hæmocytes and Hæmic Infections

A Handbook for Students and Practitioners
By F W E. BURNHAM M D C M &c.
We have no hesitation in saying that its perusal will repay every one interested"—BRITISH MEDICAL JOURNAL.
We can congratulate the author on the production of a useful volume"—MEDICAL CHRONICLE

Lewis's Medical Ledger.

Specially Designed to meet the needs of the Busy Practitioner A combined Daybook and Ledger Can be commenced at any date Size of page 11 in. by 8½ in. Strongly bound. Price 6s net; post free 6s 6d Larger size with increased space for Daybook 7s 6d net post free 8s.
Hardly possible to devise a simpler or more compact system of bookkeeping"—THE LANCET
Anyone who wants a simple and compact system of bookkeeping will find it here"—MEDICAL PRESS

*** Complete CATALOGUE post free on application

London. H K. LEWIS & CO. LTD, 136 Gower Street & 24 Gower Place, W C.
Telegrams PUBLICAVIT EUSTOAD LONDON" Telephone MUSEUM 1[illegible]

THE LANCET.

LONDON SATURDAY JULY 22 1916

The Prevention and Treatment of Venereal Diseases The Intervention of the State [1]

IN the Final Report of the Royal Commission on Venereal Diseases it was recommended that arrangements should be made without delay for providing adequate facilities for the diagnosis and treatment of all persons in the community affected with venereal disease, and a large part of the financial burden which effective measures must imply should be borne, it was said, by the State The opinion of the Commission was heartily endorsed both by the medical profession and the public The evidence which came before the Commission proved beyond doubt that venereal diseases—syphilis, gonorrhœa, and soft chancre being so defined—could be controlled and their incidence on the population reduced within narrow limits by early and efficient treatment, but it also appeared that as yet the best methods of diagnosis and therapy are not available for the population generally, with the consequence that venereal diseases inflict a vast amount of preventable suffering upon the community, culminating in the loss of many lives and in the physical ruin of many citizens The Commission faced the situation squarely by stating that the organisation of arrangements for adequate laboratory facilities and for skilled free treatment should be put in hand at once and in order that the measures taken should have a wide result, and should be unfettered by pecuniary trouble, they advised that these should be entrusted to the councils of counties and county boroughs (among which the Common Council of the City of London was included), and that 75 per cent of the cost of carrying out the proper schemes should be met from Imperial funds The Government have decided to accept entirely and immediately the advice of the Commission and Mr LONG as President of the Local Government Board has addressed a circular to the public bodies concerned asking for their coöperation, explaining the way in which the gigantic work should be carried out and enclosing the Regulations under which action will be taken These Regulations have been made under the Health Acts and are issued as an Order of the [illegible] Board, who have estimated the conditions of the present war as constituting a case of emergency, which absolves the Board from any necessity of consulting the public bodies in the matter before issuing instructions The counsel of a strong commission, inspired by unimpeachable evidence, has thus received complete endorsement, and all informed persons will applaud the promptitude of the Local Government Board. There is no doubt whatever that the organisation of scientific measures against venereal diseases will lead immediately to a great reduction in the number of cases and a corresponding alleviation of untold misery, and while this belief is so wide spread that all the local authorities would have given upon their own initiative every encouragement to medical measures undertaken to combat this evil, it is far better that the State, which will find three quarters of the money required, should from the beginning preside over the campaign

The Regulations of the Local Government Board, made on July 12th, and issued with the circular, direct that the council of every county and county borough shall, subject to the approval of the Board, make arrangements for enabling any medical practitioner practising in the area of the council to obtain, at the cost of the council, a scientific report on any material which the practitioner may submit from a patient suspected to be suffering from venereal disease They further provide that these public bodies shall prepare and submit to the Board a scheme which ensures the treatment at hospitals or other institutions of persons suffering from venereal diseases, and under which medical practitioners can be supplied with salvarsan or its substitutes It will therefore be the duty of the councils to proceed at once with the consideration of the steps which they should take in these directions, and with the preparation of a scheme for the provision of the necessary facilities for diagnosis and treatment In formulating such a scheme they will be much assisted by the memorandum from Dr NEWSHOLME, medical officer to the Local Government Board, on the medical measures which should be taken against venereal diseases This memorandum is published with the Regulations as a supplement to Mr LONG'S circular letter, and contains most practical suggestions as to the best methods by which venereal diseases can be controlled under the conditions constituted in the Regulations The immediate urgent need, says Dr NEWSHOLME, is that adequate facilities for the diagnosis and treatment of venereal diseases in their early and at all communicable stages should be provided when and where they are absent or deficient He outlines under three heads the arrangements which will be necessary (a) The establishment of clinics at hospitals or elsewhere, (b) the supply of salvarsan or its substitutes, and (c) the provision of laboratory facilities for aid in

diagnosis and treatment Under this plan each administrative county and county borough is regarded as a unit for the establishment of a scheme for treatment centres, and the clinic would in the first instance be organised in towns where there is a suitable general hospital, and, when practicable, at hospitals having medical schools attached, as well as at hospitals specially designed for women and children The point is insisted upon both in Dr NEWSHOLME'S memorandum and in Mr LONG'S circular letter that every clinic should be available for the treatment of all comers without distinction as to means or as to place of residence, while the treatment should be given as far as practicable in coöperation with the patient's own doctor These provisions arise directly out of the report of the Royal Commission [2]

At every clinic the out patient work, while varying with local circumstances, will certainly be the most important part of the treatment, but accommodation will be required for the treatment of syphilis by salvarsan or its substitutes, and for the care of certain acutely contagious cases whether of syphilis or gonorrhœa, and, further, in the event of surgical complications arising For such cases a small number of hospital beds will have to be made available Experience has shown that syphilis in its infectious stages is best treated by periodic injections of salvarsan or its recognised substitutes, supplemented by courses of mercurial treatment The administration of salvarsan or its substitutes requires special precautions in the selection of patients to whom it may be given, in the technique of administration, and in the frequency of dosage Such matters will demand from the practitioner a certain amount of practical experience, and it is properly laid down that the medical officer of the clinic should possess such personal experience in the diagnosis of venereal disease and in the modern methods for its treatment Salvarsan or its substitutes will be supplied gratuitously if administered by the medical officer of the clinic or by a medical practitioner authorised by him, while the officer's duties will include the giving of demonstrations to medical practitioners on the methods of taking and transmitting material for laboratory diagnosis In this way the level of scientific treatment of venereal diseases will rise rapidly, and it is not foolishly optimistic to expect that our population may soon be largely freed from one of its greatest physical scourges

[2] The condition that the institutional treatment should be available for the whole community is one to which we attach cardinal importance The two main difficulties in curing venereal diseases and thus preventing their spread are to ensure the application of patients for treatment at the outset of the disease and to maintain continued attendance until the doctor certifies that the patient is free from infection Although gratuitous treatment will not entirely remove these difficulties we think it will go far to do so. It may be that persons will present themselves for treatment who in the opinion of the medical officer in charge can be satisfactorily treated by their own doctor and who can afford to pay for their own treatment In such a case we think that the medical officer might properly refer the patient to a private practitioner but if the patient is unwilling there should in our opinion be no refusal to treat him at the institution."—*Report of the Royal Commission on Venereal Diseases*

Aortic Incompetence

AN efficient heart is desirable in any walk of life To the soldier it is a necessity, and the daily experience in camp and on the field is showing that the civilian standard of efficiency is often too low for the fighting man The experienced examiner of recruits is able to weed out most cases of damaged valves, but his tests are at present insufficient to detect muscular inefficiency which may give rise to trouble later The truth of this is shown by an inquiry, which we publish this week into the various conditions which lead men on active service to report sick with symptoms suggesting heart disease Among 90 consecutive cases so reporting Captain JOHN PARKINSON, R A M C, found only 28 of valvular disease of all kinds, while in 40 others who had definite cardiac symptoms no evidence of any damage to the valvular mechanism could be detected In another series of cases Captain E B GUNSON, R A M C, indicates the rôle which dysentery may play as one of the varied factors in the production of muscular cardiac inefficiency Numerically infrequent, then, as valvular disease may be in the recruit who has passed a careful clinical examination, the importance of aortic incompetence must not be entirely overlooked In eight soldiers who complained to Captain PARKINSON of giddiness and faintness six were found to have incompetent aortic valves and in one of these syncope had occurred

In the quiet and spacious times of peace the victims of aortic incompetence may get along well enough The strain of warfare both for the combatant and the non combatant evidently has a specially malign influence upon this form of cardiac lesion and gives to the well worn topic of digitalis treatment a new and pressing interest The use of digitalis in aortic incompetence has been discussed at length by numerous authorities, foremost amongst whom was the late Dr MILNER FOTHERGILL, and Sir CLIFFORD ALLBUTT, Dr MITCHELL BRUCE, Sir JAMES MACKENZIE, Dr GEORGE BALFOUR, and others have considerably added to the clinical evidence as to when the drug should be given or withheld It has been strongly urged that the tone of the heart must be constantly watched, for digitalis has the power of intensifying tone and of moderating distensibility Careful discrimination, however has to be employed in determining whether stimulation to the muscular power of the heart is required. Needless to say the employment of any drug especially of the digitalis group, simply because a murmur is heard on auscultation cannot be too strongly deprecated Digitalis itself is a potent remedy with a tendency to a cumulative action and its indiscriminate use may be attended with evil consequences Are there, then any definite rules that can be laid down for the guidance of practitioners in regard to prescribing digitalis in cases of aortic regurgitation?

In the first place, it must be insisted on that aortic regurgitation may exist without giving rise to any symptoms, the condition only being accidentally discovered, as, for instance, in examination for life assurance, and most physicians could mention cases in their own experience of individuals who had led most active lives without in the least being aware that they were the subjects of a grave cardiac lesion One of Captain PARKINSON S cases, a man of 40, who had served 16 months, including six at trench work, was found by chance to have a to and fro aortic murmur Such cases are generally young subjects, often with a history of rheumatic fever in childhood In other words, a stationary lesion is present with good compensation A very different condition holds when the aortic regurgitation is the result of degenerative processes—that is to say, a progressive lesion Some patients live to their ordinary expectancy, and some even beyond with incompetence of the aortic valves, and without ever having had a dose of digitalis, and some interesting cases of this kind were recorded by Dr SEYMOUR TAYLOR in our columns last week But such instances are exceptions to the well recognised fact that aortic regurgitation is the most serious of all valvular lesions As long as the compensation continues efficient no treatment is, of course, necessary, but if evidences of failure of the cardiac reserve force begin to assert themselves then systematic treatment is urgently demanded The most important therapeutical measure is rest, and the extent to which this must be insisted on varies with each individual case In some instances only slight modification of the patient s usual life is required, such as the avoidance of hurry and of undue mental exertion Irritability, apprehensiveness worrying over unimportant details, are all symptoms of want of an efficient circulation through the brain, and if the nervous system can be soothed, bromides being useful for this purpose, improvement may occur without the necessity of employing other drugs If, however, not only the cardiac "reserve" force but the "rest" force also is impaired, then confinement to bed is necessary, and some modification of diet may be requisite But in these cases, as in other forms of early heart failure this paraphrase holds good "And now abideth diet, drugs, and rest, these three, but the greatest of these is rest" In cases of aortic regurgitation the avoidance of sudden or extreme exertion is all important, for if such precautions are not taken sudden death is not uncommon The victims of aortic incompetence must be rigidly excluded from the army

DEPARTMENT OF HOUSEHOLD AND SOCIAL SCIENCE, [illegible] COLLEGE (UNIVERSITY OF LONDON)—Dr Jane [illegible] one of the two women assistant medical [illegible] by the Local Government Board with [illegible] has been appointed dean of this department and [illegible] at the College

Annotations.

"Ne quid nimis"

THE SUPPLY OF PETROL TO MEDICAL PRACTITIONERS.

THE apportionment of petrol to those members of the medical profession who have duly complied with the requirements of the Petrol Control Committee is now proceeding The medical profession is receiving the first attention, being given the *pas* of all other users, commercial and private The apportionment warrants, which are being sent out, should be returned as directed, together with the necessary remittance for the amount of the new duty—in the case of medical men 3*d* a gallon—and in return a licence will be received, covering a period of six months, authorising the holder of the licence to purchase petrol during each month up to an amount not exceeding the quantity stated on the licence The distribution does not appear to be based on any particular average of the amount asked for by practitioners in their returns In one case brought to our notice 70 gallons a month were asked for, and the amount allotted is 50 gallons In another case 25 gallons were asked for and 24 gallons are allotted The inference, therefore, is that an effort has been made by the authorities to meet the reasonable requirements of the profession by weighing up each demand so far as is possible, though a very wasteful engine may upset all estimates of reasonable need If the majority of the profession have been treated on the lines of the medical man who asked for 25 gallons and got 24, the reasonable requirements of the profession will have been met The new regulations come into force on August 1st, after which date no one can get a supply of petrol unless he is in possession of a special licence for this purpose, and produces the licence for endorsement on each occasion of taking in a supply There are heavy penalties for any infringement of the regulations, either on the part of the buyer or the seller So far so good, but there is a weak point in the scheme It is that the Government do not intend to take over the supply and the distribution of the spirit, so that there is a possibility, and even a great probability, that medical men in the remote country districts, possessing licences to obtain petrol, may find their local dealers without a supply It would be wise for practitioners so situated at once to take out their licences and forthwith to give their orders to their local garages for the full amount of their monthly requirements, and if they find, as the months go round, that they can do with less than they are authorised to obtain, they should reduce their orders accordingly, to the benefit of the community generally Those practitioners who did not make the return called for by the Petrol Control Committee will find their supplies cut off altogether unless they quickly take steps to repair the omission

THE METROPOLITAN WATER-SUPPLY

COMPARED with the previous months April was a relatively dry one the mean rainfall for the Thames basin being 1 19 inches, or 0 51 inch below the average mean rainfall for that month during the previous 33 years The samples of water collected at the different works were, generally speaking,

clear, bright, and free from suspended matter The results of chemical examination employing the albuminoid nitrogen, permanganate, turbidity, and colour tests showed that the raw Thames and Lee waters improved in quality during the month The same was true in regard to the raw New River water, except a deterioration shown by the albuminoid nitrogen test The filtered waters improved generally, though there were exceptions in regard to particular tests Making a comparison with the 1915 averages, the raw waters yielded results better than their respective averages, as judged by the albuminoid nitrogen, permanganate (in both cases New River excepted), turbidity, and colour tests The filtered waters fell back to a slight extent on the 1915 averages judged by the usual tests All three raw waters, however, contained less bacteria than their respective averages, with the exception again of New River water, which contained more, while the filtered waters, generally speaking, yielded not unsatisfactory results In April 93 7, 81 2, and 0 0 per cent of the samples of raw Thames, Lee, and New River respectively contained typical B coli in 1 c c (or less) of water examined, while of the filtered water samples derived from these sources 96 3, 94 4, and 93 0 per cent contained no typical B coli even in 100 c c These results show a remarkable state of bacteriological purity

DIARRHŒA AND ENTERITIS IN RELATION TO PRIVY MIDDENS

IN his annual report for 1915 Dr H Peck, the medical officer of health for Chesterfield rural district, calls attention to the high diarrhœa death rate in the district The number of deaths at all ages from this disorder during the year under review was 43, as compared with 28 in the previous year, the rate per 1000 being 0 64 as compared with the decennial average of 0 79 Dr Peck states that this rate is always higher in Chesterfield rural district than in England and Wales, where the average rate for the ten years ending 1913 was 0 52, and, in his opinion, the remedy lies in converting all the privies in the more populous parts of the district into water closets As an example of what may be done in this direction he instances Speedwell, Staveley, where the conversion of the privies in 1911 resulted in the reduction of the death rate by half, a condition that has continued to the present time This is certainly a very striking result, though we gather from the Chesterfield rural district annual report for 1913 that the population of the area in question was only 894 and care must therefore be exercised in drawing general deductions from such relatively small figures Apparently in the two parishes of Heath and Temple Normanton the average diarrhœa rate is high, these parishes having lost annually during the last ten years 2 68 and 2 00 per 1000 respectively of their populations from this preventable disease The high average rate in these parishes is stated to be due to the presence of the insanitary colliery villages of Holmewood and Bond s Main the houses of which are built in rows with privy middens flanked by coal houses placed in an almost continuous line between every two rows Sutton cum Duckmanton, containing Arkwright Town built on similar lines and Killamarsh, have also high rates Dr Peck advocates the carrying out of an almost universal conversion of privies in the southern parishes of the district The available water supply is at present insufficient to meet the needs of the water closets which would replace the privies were such a scheme of conversion carried out, and Dr Peck urges the necessity of increasing the storage capacity of the southern reservoirs and suggests that, as the interests of Chesterfield rural district and Clay Cross urban district might possibly conflict, it would be desirable that the two councils should take joint action in the matter We hope the authorities concerned will give careful consideration to the recommendations contained in Dr Peck's annual report with the view of having these much needed sanitary reforms carried out as soon as the restoration of peace permits of the further expenditure of public money

INDIA'S VITAL STATISTICS

How fundamentally the health conditions of India differ from those of other countries of the world is brought out in a report issued by the Department of Statistics This analyses the health returns compiled by the Indian sanitary authorities It shows, for example, that whereas in practically all European countries there is an excess of female births over male births, in India the contrary is markedly the case, the mean number of male births in India, taking the female births as 100, varying from 126 in the North West Frontier Province to just short of 101 in Coorg Again, both the birth and the death rate in India are extraordinarily high as compared with Western countries Like the West India has a falling death rate, the India ratio having gone down from 33 deaths per 1000 per annum in 1910 to just under 29 per 1000 in 1913 On the other hand unlike Europe, India still has a rising birth rate, the India ratio of births per 1000 of the population having increased from 35 in the quinquennial period 1886–90 to 39 in 1913 As regards provinces, the return shows Delhi as the most unhealthy, with a death rate of close upon 40 per 1000 in 1913, the year taken for review, while Madras is able to claim to be the most healthy, having had in the same period a death rate of a little over 21 per 1000

RENAL GLYCOSURIA

FROM time to time cases have been recorded in which a small amount of sugar is present in the urine and yet the blood contains only a normal amount of sugar The patient remains in good health and none of the symptoms of diabetes are present The body has lost none of its power of assimilating carbohydrate, and diet usually has little influence on the glycosuria The latter is held to be due to an abnormal permeability of the kidney to sugar, and is therefore termed renal glycosuria or—less correctly—renal diabetes In the *Johns Hopkins Hospital Bulletin* Dr D S Lewis and Dr H O Mosenthal have published an important paper on the subject in which they report the following case A man aged 29 years who appeared to be in the best of health, came under observation Six weeks previously he saw his medical attendant for backache, and glycosuria was found The former quickly disappeared but the latter persisted in spite of carbohydrate restriction The urine was of specific gravity 1035 and contained sugar but was otherwise normal The amount of sugar in the urine varied from 0 8 to 2 per cent while the sugar in the blood varied little from the normal, 0 03 per cent The glycosu-

was considerably reduced by restricting the carbo hydrates in the diet, but could be made to disappear only by six days starvation, and reappeared on only a minimum amount of food The amount of sugar passed was below 12 grammes daily when carbo hydrate was restricted, but reached 30 grammes when the carbohydrate was increased The question of the relation of renal glycosuria to diabetes is a difficult one and cannot be answered at present The recorded cases are few and they have not been followed for a sufficient time to ascertain whether diabetes develops Dr Langdon Brown has recorded the case of a man, aged 40 years and in good health, who was rejected for life assurance four years pre viously because the urine contained sugar[1] His blood contained only 0 04 per cent of sugar Yet he was not a typical example of renal glycosuria, as the amount of sugar in the urine on one occa sion rose to 9 per cent Later he lost weight and developed symptoms of neuritis The blood sugar was found to have risen to 0 142 per cent He thus passed from hypoglycæmia to hyperglycæmia Evidently ordinary diabetes was developing from a condition of renal glycosuria

SPONTANEOUS RUPTURE OF THE MALARIAL SPLEEN

IN the *Journal of the American Medical Associa tion* Dr W E Leighton, of St Louis, and Dr F Moeller, of Chicago, have reported from the 23rd General Hospital of the British Expeditionary Force, France, a case of spontaneous rupture of the malarial spleen—an occurrence which has been seldom recorded An artilleryman was admitted in August, 1915, with the following history He went to India in February, 1912, and in August had an attack of dysentery which lasted a few weeks After recovery he suffered from chills which re curred regularly one during the day and another during the night After two days treatment they disappeared and he remained well until October 1914 when they recurred while he was on a trans port returning to England He again recovered under a few days treatment While at the front in France after a severe bombardment he had some nervous trouble for several days On August 13th, 1915, he was taken ill with chills fever, headache and pains in the abdomen There was no history of any injury He was put to bed for six days at a casualty clearing station and felt better He was then removed to the 23rd General Hospital While on the train he was seized with severe pains in the epigastrium, which extended later over the whole abdomen On admission the temperature was 97 1 He was emaciated and anæmic The respira tions were slow but shallow, the right chest moved less than the left and its lower part showed an area of dullness extending 1 inch above the nipple Over this area vocal fremitus and breath sounds were diminished The left chest showed normal breath sounds but was hyper resonant Cardiac dullness was to the left of the nipple line and the apex beat was one inch from this in the fourth interspace The abdomen was slightly dis tended but soft and there was no muscular rigidity The region of the gall bladder was very tender especially towards the epigastrium and there was [illegible] tenderness of the appendix region Acute attacks of pain simulating biliary colic but extend ing to the left upper hypochondriac region occurred The temperature ranged from 101 to 102 During the night of August 25 th there was a severe attack of pain in the epigastrium, the temperature fell to 97 4° and the pulse rose to 120 The patient was collapsed Exploratory laparotomy was performed in the right upper quadrant of the abdomen Much old clotted blood and also dark fluid blood appeared There were adhesions between the parietal peri toneum and the liver, but no gall stones were felt The spleen was enlarged and soft and the omentum was firmly adherent to its convex surface The adhesions were not broken down and the abdomen was closed, drainage being provided Convales cence was interrupted by an attack of pneumonia, and after the crisis chills occurred and the malarial plasmodium was found in the blood Though no bleeding point was found at the operation the evidence was clear that the source must have been a rupture of the enlarged spleen which led to the formation of adhesions

ROYAL MEDICAL BENEVOLENT FUND AN EMERGENCY APPEAL

Dr Samuel West, as honorary treasurer of this Fund, gratefully acknowledges the receipt of four large donations in response to the appeal which appeared in THE LANCET in July, besides smaller sums The donations, each of £100, are from Dr A Whitfield, Miss Helen Hall, Sir John Tweedy (President of the Fund), and Mr Hurry Fenwick At the meeting in the month of May the com mittee had a balance of only £27 0*s* 1*d* , in June a deficit of £16 3*s* 5*d* , and in July a balance of £24 13*s* Grants in relief were made in May of £197, in June of £190, and in July of £280 15*s* , £667 15*s* in all, the amount expended thus exceed ing the receipts by no less than £632 5*s* 4*d* The need of liberal and immediate relief is obvious, and subscriptions should be sent to Dr Samuel West, at 11, Chandos street, Cavendish square, W We refer our readers to a letter from Dr West published in another column

WE deeply regret to learn of the death of Sir Victor Horsley, which occurred in Mesopotamia at the beginning of this week In him we have lost one of the first exponents of British surgery, a great physiological discoverer, and a forceful and generous personality His death will be universally deplored

ROYAL COLLEGE OF SURGEONS OF ENGLAND

MEETING OF COUNCIL

A QUARTERLY meeting of the Council was held on July 13th Sir W WATSON CHEYNE, the President, being in the chair

Sir W Watson Cheyne was re elected President of the College and Mr Harrison Cripps and Mr Charters Symonds were elected Vice Presidents for the ensuing collegiate year

The PRESIDENT announced the result of the recent election of members of Council Mr Haslam and Mr Johnson were introduced, and they made declarations in the terms of the oath prescribed by the Charter of 1800 and took their seats in the Council Mr Charters S[illegible] re elected on a previous occasion, was also introdu[illegible]

It was resolved to grant jointly with the [illegible] of Physicians of London Diplomas in [illegible] three successful candidates

The PRESIDENT reported on behalf of [illegible] and the Vice-Presidents that as requested by the Council in July 1915 they had on Dec [illegible] 6th and July 6 h 1916 held conferences with Arthur Downes and D Fuller of the Local Government Board on the subject of the special fees to Poor Law medical officers and that as a result of these conferences it was proposed to

clear, bright, and free from suspended matter The results of chemical examination employing the albuminoid nitrogen, permanganate, turbidity, and colour tests showed that the raw Thames and Lee waters improved in quality during the month The same was true in regard to the raw New River water, except a deterioration shown by the albuminoid nitrogen test The filtered waters improved generally, though there were exceptions in regard to particular tests Making a comparison with the 1915 averages, the raw waters yielded results better than their respective averages, as judged by the albuminoid nitrogen, permanganate (in both cases New River excepted), turbidity, and colour tests The filtered waters fell back to a slight extent on the 1915 averages judged by the usual tests All three raw waters, however, contained less bacteria than their respective averages, with the exception again of New River water, which contained more, while the filtered waters, generally speaking, yielded not unsatisfactory results In April 93 7, 81 2, and 0 0 per cent of the samples of raw Thames, Lee, and New River respectively contained typical B coli in 1 c c (or less) of water examined, while of the filtered water samples derived from these sources 96 3, 94 4, and 93 0 per cent contained no typical B coli even in 100 c c These results show a remarkable state of bacteriological purity

DIARRHŒA AND ENTERITIS IN RELATION TO PRIVY MIDDENS

IN his annual report for 1915 Dr H Peck, the medical officer of health for Chesterfield rural district, calls attention to the high diarrhœa death rate in the district The number of deaths at all ages from this disorder during the year under review was 43, as compared with 28 in the previous year, the rate per 1000 being 0 64 as compared with the decennial average of 0 79 Dr Peck states that this rate is always higher in Chesterfield rural district than in England and Wales, where the average rate for the ten years ending 1913 was 0 52, and, in his opinion, the remedy lies in converting all the privies in the more populous parts of the district into water closets As an example of what may be done in this direction he instances Speedwell, Staveley, where the conversion of the privies in 1911 resulted in the reduction of the death rate by half, a condition that has continued to the present time This is certainly a very striking result, though we gather from the Chesterfield rural district annual report for 1913 that the population of the area in question was only 894 and care must therefore be exercised in drawing general deductions from such relatively small figures Apparently in the two parishes of Heath and Temple Normanton the average diarrhœa rate is high, these parishes having lost annually during the last ten years 2 68 and 2 00 per 1000 respectively of their populations from this preventable disease The high average rate in these parishes is stated to be due to the presence of the insanitary colliery villages of Holmewood and Bond s Main the houses of which are built in rows with privy middens flanked by coal houses placed in an almost continuous line between every two rows Sutton cum Duckmanton, containing Arkwright Town built on similar lines and Killamarsh, have also high rates Dr Peck advocates the carrying out of an almost universal conversion of privies in the southern parishes of the district The available water supply is at present insufficient to meet the needs of the water closets which would replace the privies were such a scheme of conversion carried out, and Dr Peck urges the necessity of increasing the storage capacity of the southern reservoirs and suggests that, as the interests of Chesterfield rural district and Clay Cross urban district might possibly conflict, it would be desirable that the two councils should take joint action in the matter We hope the authorities concerned will give careful consideration to the recommendations contained in Dr Peck s annual report with the view of having these much needed sanitary reforms carried out as soon as the restoration of peace permits of the further expenditure of public money

INDIA'S VITAL STATISTICS

HOW fundamentally the health conditions of India differ from those of other countries of the world is brought out in a report issued by the Department of Statistics This analyses the health returns compiled by the Indian sanitary authorities It shows, for example, that whereas in practically all European countries there is an excess of female births over male births, in India the contrary is markedly the case, the mean number of male births in India, taking the female births as 100, varying from 126 in the North West Frontier Province to just short of 101 in Coorg Again, both the birth and the death rate in India are extraordinarily high as compared with Western countries Like the West India has a falling death rate, the India ratio having gone down from 33 deaths per 1000 per annum in 1910 to just under 29 per 1000 in 1913 On the other hand, unlike Europe, India still has a rising birth rate, the India ratio of births per 1000 of the population having increased from 35 in the quinquennial period 1886–90 to 39 in 1913 As regards provinces, the return shows Delhi as the most unhealthy, with a death rate of close upon 40 per 1000 in 1913, the year taken for review, while Madras is able to claim to be the most healthy having had in the same period a death rate of a little over 21 per 1000

RENAL GLYCOSURIA

FROM time to time cases have been recorded in which a small amount of sugar is present in the urine and yet the blood contains only a normal amount of sugar The patient remains in good health and none of the symptoms of diabetes are present The body has lost none of its power of assimilating carbohydrate and diet usually has little influence on the glycosuria The latter is held to be due to an abnormal permeability of the kidney to sugar, and is therefore termed renal glycosuria or—less correctly—renal diabetes In the Johns Hopkins Hospital Bulletin Dr D S Lewis and Dr H O Mosenthal have published an important paper on the subject in which they report the following case A man aged 29 years who appeared to be in the best of health, came under observation Six weeks previously he saw his medical attendant for backache and glycosuria was found The former quickly disappeared, but the latter persisted in spite of carbohydrate restriction The urine was of specific gravity 1035 and contained sugar but was otherwise normal The amount of sugar in the urine varied from 0 2 to 2 per cent while the sugar in the blood varied little from the normal 0 09 per cent The glycosuria

was considerably reduced by restricting the carbohydrates in the diet, but could be made to disappear only by six days' starvation, and reappeared on only a minimum amount of food The amount of sugar passed was below 12 grammes daily when carbohydrate was restricted, but reached 30 grammes when the carbohydrate was increased The question of the relation of renal glycosuria to diabetes is a difficult one and cannot be answered at present The recorded cases are few and they have not been followed for a sufficient time to ascertain whether diabetes develops Dr Langdon Brown has recorded the case of a man, aged 40 years and in good health, who was rejected for life assurance four years previously because the urine contained sugar[1] His blood contained only 0 04 per cent of sugar Yet he was not a typical example of renal glycosuria, as the amount of sugar in the urine on one occasion rose to 9 per cent Later he lost weight and developed symptoms of neuritis The blood sugar was found to have risen to 0 142 per cent He thus passed from hypoglycæmia to hyperglycæmia. Evidently ordinary diabetes was developing from a condition of renal glycosuria

SPONTANEOUS RUPTURE OF THE MALARIAL SPLEEN

IN the *Journal of the American Medical Association* Dr W E Leighton, of St Louis, and Dr F Moeller, of Chicago, have reported from the 23rd General Hospital of the British Expeditionary Force, France, a case of spontaneous rupture of the malarial spleen—an occurrence which has been seldom recorded An artilleryman was admitted in August, 1915, with the following history He went to India in February, 1912, and in August had an attack of dysentery which lasted a few weeks After recovery he suffered from chills which recurred regularly one during the day and another during the night After two days treatment they disappeared and he remained well until October 1914 when they recurred while he was on a transport returning to England He again recovered under a few days treatment While at the front in France after a severe bombardment he had some nervous trouble for several days On August 13th, 1915, he was taken ill with chills, fever, headache, and pains in the abdomen There was no history of any injury He was put to bed for six days at a casualty clearing station and felt better He was then removed to the 23rd General Hospital While on the train he was seized with severe pains in the epigastrium which extended later over the whole abdomen On admission the temperature was 97 1 He was emaciated and anæmic The respirations were slow but shallow the right chest moved less than the left and its lower part showed an area of dullness extending ½ inch above the nipple Over this area vocal fremitus and breath sounds were diminished The left chest showed normal breath sounds but was hyper resonant Cardiac dullness was to the left of the nipple line and the apex beat was one inch from this in the fourth interspace The abdomen was slightly distended but soft and there was no muscular rigidity The region of the gall bladder was very tender especially towards the epigastrium and there was some tenderness of the appendix region Acute attacks of pain, simulating biliary colic but extending to the left upper hypochondriac region occurred The temperature ranged from 101 to 102 During the night of August 25th there was a severe attack of pain in the epigastrium, the temperature fell to 97 4° and the pulse rose to 120 The patient was collapsed Exploratory laparotomy was performed in the right upper quadrant of the abdomen Much old clotted blood and also dark fluid blood appeared There were adhesions between the parietal peritoneum and the liver, but no gall stones were felt The spleen was enlarged and soft and the omentum was firmly adherent to its convex surface The adhesions were not broken down and the abdomen was closed, drainage being provided Convalescence was interrupted by an attack of pneumonia, and after the crisis chills occurred and the malarial plasmodium was found in the blood Though no bleeding point was found at the operation the evidence was clear that the source must have been a rupture of the enlarged spleen which led to the formation of adhesions

[1] [illegible]

ROYAL MEDICAL BENEVOLENT FUND AN EMERGENCY APPEAL

Dr Samuel West, as honorary treasurer of this Fund, gratefully acknowledges the receipt of four large donations in response to the appeal which appeared in THE LANCET in July, besides smaller sums The donations, each of £100, are from Dr A Whitfield, Miss Helen Hall, Sir John Tweedy (President of the Fund), and Mr Hurry Fenwick At the meeting in the month of May the committee had a balance of only £27 0s 1d , in June a deficit of £16 3s 5d , and in July a balance of £24 13s Grants in relief were made in May of £197, in June of £190, and in July of £280 15s , £667 15s in all, the amount expended thus exceeding the receipts by no less than £632 5s 4d The need of liberal and immediate relief is obvious, and subscriptions should be sent to Dr Samuel West, at 11, Chandos street, Cavendish square, W We refer our readers to a letter from Dr West published in another column

WE deeply regret to learn of the death of Sir Victor Horsley, which occurred in Mesopotamia at the beginning of this week In him we have lost one of the first exponents of British surgery, a great physiological discoverer, and a forceful and generous personality His death will be universally deplored

ROYAL COLLEGE OF SURGEONS OF ENGLAND

MEETING OF COUNCIL

A QUARTERLY meeting of the Council was held on July 13th Sir W WATSON CHEYNE, the President, being in the chair

Sir W Watson Cheyne was re elected President of the College and Mr Harrison Cripps and Mr Charters Symonds were elected Vice Presidents for the ensuing collegiate year

The PRESIDENT announced the result of the recent election of members of Council Mr Haslam and Mr Johnson were introduced, and they made declarations in the terms of the oath prescribed by the Charter of 1800 and took their seats in the Council Mr Charters Symonds, re elected on a previous occasion was also introduced

It was resolved to grant jointly with the Royal College of Physicians of London Diplomas in Public Health to three successful candidates

The PRESIDENT reported on behalf of himself and the Vice Presidents that as requested by the Council in July 1915 they had on Dec. 14th 1915 June 8th and July 6th 1916 held conferences with Sir Arthur Downes and Dr Fuller of the Local Government Board on the subject of the special fees to Poor law medical officers and that as a result of these conferences it was proposed to

recommend to the Board to introduce several alterations and amendments in the General Order of the Board relating to the matter

Sir FREDERIC EVE reported his attendance, as the representative of the College, at the meetings of the committee appointed by the Commissioner of Police to consider the conditions under which licences to drive motor-cars might be granted to maimed persons, he stated that the committee had now sent in its report

A letter was read from the Rubber and Tin Exports Committee stating that largely owing to the kind assistance of Mr S G Shattock, the questions which had arisen in connexion with the export from this country to neutrals of surgical rubber goods have now been settled satisfactorily and thanking the College for the assistance given in the matter

A letter was read from the assistant secretary of the Royal Society forwarding a copy of regulations for the organisation of a Conjoint Board of Scientific Societies adopted at a conference of the societies concerned convened by the Royal Society and asking the College to nominate two representatives to the Board in accordance with the provisions of the scheme The President and Sir John Bland Sutton were named

A letter was read from Sir Alfred Pearce Gould resigning his membership of the Committee of Management and of the Executive Committee of the Imperial Cancer Research Fund The best thanks of the Council were given to Sir Alfred Pearce Gould for his services Mr Haslam was appointed a member of the Committee of Management and Mr Bilton Pollard was appointed a substitute member for Sir George Makins Mr D Arcy Power was elected a member of the Executive Committee of the Imperial Cancer Research Fund

The following professors and lecturers were appointed — *Hunterian Professors* —Dr Arthur Keith Six lectures on the *Anatomy of the Human Body*, Mr *Jonathan Hutchinson* One lecture on the Surgical Treatment of Trigeminal Neuralgia, Mr Robert Henry Elliot Two lectures on the Operation of Couching of the Lens for Cataract as Practised in India, Mr William Sampson Handley One lecture on Paget's Disease of the Nipple, Mr Alfred Edward Webb Johnson One lecture on the Surgical Complications of Typhoid and Paratyphoid Fevers, Mr Frank Cook One lecture on Gunshot Wounds of Joints, their Pathology and Treatment *Arris and Gale Lecturers* —Mr Ernest W Hey Groves One lecture on Bone Growth and Bone Grafting, Dr Wilfred Harris Two lectures on the Morphology of the Brachial Plexus in its Relation to Surgery *Erasmus Wilson Lecturer* —Mr Samuel George Shattock Six demonstrations on Surgical Pathology *Arnott Demonstrator* —Dr Arthur Keith Eighteen demonstrations on the Anatomy of the Human Body These demonstrations with the six Hunterian lectures, are to form a course of 24 lectures suitable for ambulance and first-aid students, 12 to be given in the autumn of 1916 and 12 in the spring of 1917 Odontological Demonstrator — Mr James Frank Colver Two demonstrations on Fractures of the Jaw

The Council resolved that the attention of the Fellows and Members of the College should be called to the improper use which may be made of medical certificates and the responsibility which is attached to their issue, the resolution arising out of the statements made to the College that the Naval authorities had complained of laxity

---

DONATIONS AND BEQUESTS —The late Miss Ellen Constantia Hodgkinson of Preston Lancs has bequeathed £1000 to the Royal Infirmary at Preston £500 to the Preston Parish Nurses Fund and £300 to the Church of England Zenana Missionary Society —By will the late Mrs Mary Jane Smith of Leamington has bequeathed £500 to the Earlswood Asylum for Idiots and £500 to the Warneford Leamington and South Warwick General Hospital —The late Miss Agnes Crowley, of Marylebone has left property of the value of £12 949 to be divided subject to life interests, among the Hospital for Sick Children, Great Ormond Street the Inwood Cottage Hospital Alton, the Governesses Benevolent Society, the Surgical Aid Society the Hospital for Women Soho-square the Middlesex Hospital the Alton Town Nursing Fund the National Benevolent Society and the Hazelwood House Branch of the Y M C A Ryde —The Chelsea Hospital for Women has received two anonymous donations of £1000 each to establish memorial beds in the new hospital —Sir John Llewellyn has given the further sum of £1000 to the Swansea Hospital

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

To be temporary Surgeons John A D Skinner R O Townend, and T R F Kerby

The following appointments have been notified —Fleet Surgeons J St T Murphy to the *Commonwealth* and R St G S Bond to Plymouth Hospital

ARMY MEDICAL SERVICE

Lieutenant-Colonels to be temporary Colonels whilst Assistant Directors of Medical Services R J W Mawhinney and D J Collins

Canadian Army Medical Corps Majors to be temporary Lieutenant Colonels G Bourgeois E A Le Bel F H L de Martigny, and H J Theriault Captain R Mayrand to be temporary Major

SPECIAL RESERVE OF OFFICERS

Royal Army Medical Corps

Temporary Lieutenant D R Jones, from R A M C, to be Captain

Staff Sergeant C O J Young, from Dublin University Officers Training Corps, to be Lieutenant (on probation)

TERRITORIAL FORCE

Royal Army Medical Corps

Welsh Field Ambulance R R Powell to be Lieutenant

Welsh Border Mounted Brigade Field Ambulance C Jephcott, to be Lieutenant

Highland Field Ambulance Lieutenant G Torrance to be Captain

Lowland Field Ambulance Captain L S Forde, Scottish Borderers to be temporary Major

Southern General Hospital Captain L G Parsons is seconded

London Sanitary Company The undermentioned Lieutenants to be Captains J Davidson, H Duguid W S R Campbell, W A I Balfour Browne, and R A Askins

West Lancs Casualty Clearing Station Lieutenant F M De Jong to be Captain

West Lancs Divisional Sanitary Section Lieutenant A Reid to be Captain

Attached to Units other than Medical Units —Lieutenants to be Captains F M Hughes and T F Saunt. P Pope to be Surgeon Captain in the Territorial Cadet Training Corps

---

THE CONSERVATION OF CHILD LIFE —Dr Maxwell Williamson, medical officer of health of Edinburgh has prepared a scheme for the conservation of child life, which is to be considered by the public health committee of the town council Dr Williamson points out that the Notification of Births Act 1915, confers upon local authorities the power to frame and carry out schemes for the preservation of the mother during her maternity periods and for supervision over the lives of the children under 5 years of age He says that in every large community there is a serious sacrifice of child life which could be very materially reduced under special care and the adoption of every possible preventive measure The two principal causes of death in Edinburgh are measles and whooping cough but even more important as causes of death are those resulting from premature birth or associated in some way with maternity conditions which under suitable treatment are undoubtedly preventable In Edinburgh there are already a great many agencies whose special object is the benefit of the child and the mother and Dr Williamson's scheme is to link up all these into one whole The two main centres would be the Royal Hospital for Sick Children and the Royal Maternity Hospital and the different dispensaries in the city would be subsidiary centres At these centres provision would be made for adequate treatment the whole of the supervision being under the medical officer of health The additional office staff necessary would include one lady doctor two female clerks two female official visitors and six district nurses Certain other existing institutions would be included in the scheme and maternity and child clinics would be held The names of expectant mothers would be entered in the former if they be duly registered and if the person is not insured and is unable to pay the fee of a doctor, she would be supplied and if necessary would continue to attend the clinics after the birth of the child The child clinics would be devoted to the care of infants and children from the time of birth to the age of 5 years Records would be kept and milk etc supplied free The cost of the scheme would be £612 per annum

Obituary.

ELIE METCHNIKOFF

NOBEL LAUREATE SUB-DIRECTOR OF THE PASTEUR INSTITUTE IN PARIS

A YEAR ago we recorded the death of Paul Ehrlich and now his great contemporary Elie Metchnikoff has passed away Twenty years ago their teaching of the mechanism of immunity, the one representing the German "humoral" school the other the French "cellular" school—was still in the sharpest possible contrast Now in the fuller light of modern bacteriological research, the two views have almost become blended into a harmonious whole

To Metchnikoff we owe the first serious attemp to explain the resistance of the body to bacterial invasion Setting aside the crude and speculative views put forward by Pasteur and Chauveau who regarded the animal body as a mere culture medium for the growth of micro-organisms which flourished in it until the necessary pabulum was exhausted or their own products choked them Metchnikoff formulated the conception of an active bodily defence finding its mechanism in the functions of the leucocytes Panum (1874) and Roser (1881) had previously suggested that bacteria might be ingested by these cells but to Metchnikoff is due the entire development of the idea that leucocytes possessed as a normal function the power of digesting and destroying foreign particles and among them the invading parasitic organisms It was in 1883 in an address delivered a Odessa before the Congress of Naturalists and Medical Men that he first propounded the doctrine of phagocytosis as the main defensive agency of the body

ELIE METCHNIKOFF

SUB-DIRECTOR OF THE PASTEUR INSTITUTE PARIS

Metchnikoff was by upbringing a biologist and his views were naturally founded upon a long series of patient studies on the lower forms of life enabling him to trace the phagocytic process from the lowlies up to the most specialised members of the animal kingdom The central fact of his theory could readily be verified by anyone and the theory of phagocytic defence immediately gained a wide acceptance At this time the properties of the microbe were very imperfectly understood and the influence of the fluids of the body had not entered [illegible] During the 15 years which followed [illegible] announcement a knowledge of the properties of the fluid elements of the blood gradually accumulated [illegible] bactericidal power of the blood serum was first noted by Foder (1887) and expounded by Buchner (1889) in his alexine theory in fundamental antagonism to Metchnikoff's views Pfeiffer's enunciation of the doctrine of bacteriolysis in 1894 paved the way for Ehrlich's comprehensive study of humoral phenomena, and for a very wide acceptance of the side-chain theory which ascribed the dominating influence in the body's defence to the fluid elements of the blood. Ehrlich was a chemist and his theory naturally followed on his investigations of the specific action of dyes on living tissues

It is a matter of recent history how these two apparently widely divergent views can be harmonised. Undoubtedly the most important step in this direction was taken by Wright when he popularised the notion of the necessity of the presence of a humoral element in the blood preparing the bacteria for phagocytosis Denys and Leclef in 1895 had partly foreshadowed this result but the teaching of the Louvain school had not attracted any wide attention It is enough to point out here how the opsonin theory of Wright the bacteriotropin theory of Neufeld and the aggressin theory of Bail have gradually reconciled the views of Metchnikoff and Ehrlich in a harmonious theory of the resisting powers of the whole blood as a complete tissue, on which the symmetrical modern structure of immunity is being firmly built up

Of Metchnikoff's writings the most important is the Immunity in Infectious Diseases' (1901) summing up as he himself states the labours of 25 years This book he dedicated to MM Duclaux and Roux, generously acknowledging their assistance to a zoologist who had wandered into the domain of biological chemistry and medical science Of this work an English translation appeared in 1905 (Cambridge University Press). In another large book, The Nature of Man Studies in Optimistic Philosophy (English translation 1903. W Heinemann) Metchnikoff enunciated his creed that the fear of death which grows as old age creeps upon us is only the prompting of an instinct which tells us that we are dying before life's span has run its natural course He claimed that senile decay was mainly due to the destruction of the higher elements of the organism by microphages saving that if intestinal and other toxins were eliminated by modern surgical methods and appropriate hygiene the number of man's days might be greatly extended until he should meet a natural death whose coming would be welcome. Later on as is well known Metchnikoff found in the Bulgarian bacillus an agent to assist this production of longevity The Harben lectures on the "New Hygiene" delivered in French in May 1906 and reprinted

in a small volume (1906 W Heinemann), dealt in a popular manner with the subjects of his larger works, and in the third lecture with the inunction of mercurial ointment as a prophylactic against syphilitic infection, based on the successful protection of apes by this method

Elie Metchnikoff was born at Kharkov, in Russia, in 1845, and died at the Pasteur Institute in Paris, on July 15th, 1916, at the age of 71 years After graduating at Kharkov University at the age of 19, he studied at Giessen, Göttingen, and Naples, becoming professor of zoology in the University of Odessa when he was 25 Five years after publication of his thesis on phagocytosis, in 1888, he received an invitation from Pasteur to work with him in Paris at the laboratory in the Ecole Normale, which was the predecessor of the Pasteur Institute, at which he was later appointed sub-director He remained in Paris, where his death has now occurred nearly 30 years later Metchnikoff was a foreign member and medallist of the Royal Society, a foreign member of the Linnean Society, an honorary member of the Manchester Literary and Philosophical Society, an honorary D Sc of Cambridge and a member of the Academy of Sciences of Paris and Petrograd In 1908 he was awarded a Nobel medal, and only a few weeks ago the Albert Medal of the Royal Society of Arts was conferred upon him in recognition of the value of his investigations into the causes of immunity

VITAL STATISTICS

HEALTH OF ENGLISH TOWNS

IN the 96 largest English and Welsh towns with populations exceeding 50,000 persons at the last Census, 7852 births and 3552 deaths were registered during the week ended Saturday, July 15th The annual rate of mortality in these towns which had been 12 6 11 6, and 11 1 per 1000 in the three preceding weeks, fell in the week under notice to 10 7 per 1000 of their aggregate civil population estimated at 17,312,295 persons for the year 1915 During the 13 weeks of last quarter the mean annual death rate in these towns averaged 14 3, against 13 8 per 1000 in London Among the several towns the death rate last week ranged from 4 2 in Ipswich, 4 7 in Ealing, 4 8 in Southend-on Sea, 4 9 in Blackpool and 5·0 in Leyton and in Barrow in Furness to 14 5 in Wigan, 14 8 in Stockport, 15 3 in Walsall, 15 6 in Carlisle and 21·0 in Hastings

The 3552 deaths from all causes were 141 below the number in the previous week, and included 222 which were referred to the principal epidemic diseases against numbers declining from 335 to 224 in the six preceding weeks Of these 222 deaths, 62 resulted from measles 51 from infantile diarrhœal diseases, 47 from diphtheria 40 from whooping-cough, 15 from scarlet fever, and 7 from enteric fever but not one from small pox. The annual death rate from these diseases was equal to 0 7 per 1000 and coincided with that recorded in each of the four preceding weeks The deaths attributed to measles which had been 67, 68, and 60 in the three preceding weeks, slightly rose to 62 and included 18 in London 7 in Liverpool, 4 in Sheffield and 3 each in West Ham Walthamstow, and Newcastle-on Tyne The deaths of infants (under 2 years) from diarrhœa and enteritis which had been 45, 50 and 54 in the three preceding weeks, fell to 51 of which 16 occurred in London 4 in Liverpool and 3 in Birmingham The fatal cases of diphtheria, which had been 27, 29 and 35 in the three preceding weeks further rose to 47, and included 13 in London and 3 in Liverpool The deaths attributed to whooping-cough, which had been 77, 55 and 61 in the three preceding weeks fell to 40 8 deaths were recorded in London 5 in Birmingham, 4 in Liverpool, and 3 in Manchester The deaths referred to scarlet fever which had been 15 13 and 4 in the three preceding weeks rose to 15 and included 4 each in London and Liverpool and 2 in Southampton The fatal cases of enteric fever, which had been 13 10, and 9 in the three preceding weeks further fell to 7 but showed no excess in any particular town

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital which had been 1303 1273 and 1262 at the end of the three preceding weeks further declined to 1236 on Saturday last 150 new cases were admitted during the week against 171 162, and 170 in the three preceding weeks These hospitals also contained on Saturday last 127 cases of diphtheria 195 of measles 162 of whooping-cough and 47 of enteric fever but not one of small pox. The 889 deaths from all causes in London were in excess of the number in the previous week and corresponded to an annual death rate of 10·8 per 1000 The deaths referred to diseases of the respiratory system which had been 157 107 and 90 in the three preceding weeks rose to 117 in the week under notice

Of the 3552 deaths from all causes in the 96 towns 1 resulted from violence and 263 were the subject of coroners inquests, while 1152 occurred in public institutions The causes of 34, or 1·0 per cent of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest All the causes of death were duly certified in Sheffield, Leeds, Bristol Bradford Newcastle-on Tyne, and in 65 other smaller towns Of the 34 uncertified causes 7 were registered in Birmingham and 2 each in London, Liverpool, and South Shields

HEALTH OF SCOTCH TOWNS

In the 16 largest Scotch towns with an aggregate population estimated at 2,372,000 persons at the middle of this year 1098 births and 571 deaths were registered during the week ended Saturday July 15th The annual rate of mortality in these towns, which had been 13 4 12 6 and 12·4 per 1000 in the three preceding weeks, rose to 12 6 per 1000 in the week under notice During the 13 weeks of last quarter the mean annual death rate in these towns averaged 15 3 or 1·0 per 1000 in excess of that recorded in the large English towns Among the several towns the death rate last week ranged from 2 9 in Perth, 7 8 in Ayr and 8·0 in Hamilton and Clydebank, to 14·0 in Kilmarnock, 16·0 in Coatbridge and 18 4 in Falkirk

The 571 deaths from all causes were 8 in excess of the number in the previous week, and included 44 which were referred to the principal epidemic diseases against 54 and 46 in the two preceding weeks Of these 44 deaths 18 resulted from measles 8 each from whooping-cough and infantile diarrhœal diseases, 7 from scarlet fever, and 3 from diphtheria, but not one from enteric fever or from small pox The annual death rate from these diseases was equal to 1 0 against 0 7 per 1000 in the large English towns The deaths attributed to measles, which had been 19, 28, and 19 in the three preceding weeks numbered 18 of which 13 occurred in Glasgow and 3 in Leith The deaths referred to whooping-cough, which had been 4 5 and 8 in the three preceding weeks were again 8 last week, and comprised 5 in Glasgow and 3 in Coatbridge The fatal cases of diarrhœa and enteritis (among infants under 2 years), which had been 11 13 and 5 in the three preceding weeks rose to 8, and included 4 in Glasgow The deaths attributed to scarlet fever, which had been 7 1, and 8 in the three preceding weeks numbered 7 last week, of which 5 were registered in Glasgow The 3 deaths from diphtheria were 3 below the average in the 13 weeks of last quarter, and comprised 2 in Glasgow and 1 in Kirkcaldy In addition to the above deaths 3 fatal cases of typhus were registered in Glasgow

The deaths referred to diseases of the respiratory system, which had been 75, 57 and 64 in the three preceding weeks fell to 50 in the week under notice and were 10 below the number registered in the corresponding week of last year The deaths from violence numbered 16, against 22 and 23 in the two preceding weeks

HEALTH OF IRISH TOWNS

In the registration area of Dublin 182 births and 143 deaths were registered during the week ended Saturday July 15th The annual rate of mortality which had been 15 9 17 3 and 17 6 per 1000 in the three preceding weeks was 18 8 in the week under notice or excluding 27 deaths resulting from the recent disturbances it was equal to 15 3 against 10 8 and 13 7 per 1000 in London and Glasgow respectively

Of the 143 deaths at all ages 17 related to infants under 1 year and 29 to persons aged 65 years and upwards Two deaths were referred to whooping-cough and 1 each to measles scarlet fever, and infantile diarrhœa

The causes of 33 deaths were uncertified and 12 others were the subject of coroners inquests while 55 or 38 per cent of the total deaths occurred in public institutions

During the same period 165 births and 110 deaths were registered in the city of Belfast The deaths corresponded to an annual rate of 14 7 or 2 3 per 1000 higher than that recorded in the previous week and included 15 of infants under 1 year and 19 of persons aged 65 years and upwards Four deaths were referred to measles 2 to scarlet fever and 1 each to enteric fever, whooping-cough and infantile diarrhœa The causes of 2 deaths were uncertified and 7 others were the subject of coroners inquests while 31 occurred in public institutions

TRAFFIC IN NARCOTIC DRUGS—The conviction on Tuesday at Marlborough Street police-court of [illegible] charged with being concerned in the sale of cocaine to a member of His Majesty's Forces has called [illegible] to a state of affairs which has long given rise to anxiety in medical circles An [illegible] was taken under a recent Order issued upon the Defence of the Realm [illegible] civilian is in urgent need of the [illegible] cocaine habit and [illegible] in the present [illegible]

Correspondence.

Audi alteram partem "

THE NATURE OF THE CHANGES WHICH OCCUR IN MUSCLE AFTER NERVE SECTION

To the Editor of THE LANCET

SIR,—There are one or two points in Dr H Hernaman Johnson's letter in your issue of July 15th on which I may perhaps be allowed to make a few remarks

1 Dr Hernaman Johnson says that it is easy to believe that sufficiently violent faradism will cause contraction in denervated muscles This mode of expression seems to imply what is more definitely stated in the late Dr Lewis Jones's work on Medical Electricity —viz, that after nerve section there is a rapid early fall in the irritability of the muscle fibres I do not think this is the case The fall of irritability seems to me to be gradual throughout When a rapid decrease of irritability is observed it is, I think due to nerve degeneration Strong faradic currents are required to stimulate directly muscle fibres whether they are normal or denervated when large electrodes are used and they are placed on the skin overlying the muscles, but weak currents are sufficient if the electrodes are small and they are placed directly on the muscle I have thus obtained contraction in denervated muscles (which had lost about 50 per cent of their weight) on stimulating them with faradic currents which I could barely feel on the tip of the tongue

2 On general grounds I should be inclined to agree with Dr Hernaman-Johnson that electrical stimulation causing contraction is beneficial in the stage of regeneration but the earlier the stage the greater care should I think be taken to avoid fatigue since regenerating nerve is very easily fatigued by electrical stimulation and the normal impulses thus cut off Whilst I do not think that contraction caused by electrical currents has any appreciable effect in preventing the wasting of denervated muscle I have not found that it causes any appreciable increase of wasting Its harmful effect when it has any probably occurs in cases in which it produces traction of the nerves and in consequence delays regeneration

3 Dr Hernaman Johnson urges physiologists to abandon the use of the faradic coil He is I think under some misapprehension as to the use to which the faradic coil is put in physiological laboratories Its merits and demerits have received a great deal of attention, and have been fairly thoroughly worked out For purposes of accurate measurement of nerve or muscle irritability the coil with vibrating hammer is rarely used The methods which are used may be gathered from papers published in the *Journal of Physiology* during the last 10 years by Dr Keith Lucas by the late Professor Mines and by Mr Adrian (Condenser currents I may mention were employed by Professor Waller in 1899) But for a first approximation a du Bois Reymond coil or some modification of it gives sufficiently accurate results and it would be as sensible to dispense with its use as it would be to give up the ordinary thermometer because we can measure a variation of temperature to about a millionth of a degree centigrade

I am Sir yours faithfully

J [illegible] J N LANGLEY

THE RELIEF OF DISTRESS IN THE MEDICAL PROFESSION ARISING OUT OF THE WAR

To the Editor of THE LANCET

SIR,—The war has already caused much distress in the medical profession and this is certain to increase if the war continues The distress will later gradually relieve itself when the war is over and the doctors now serving return to civil life Meanwhile the present distress [illegible] The Association of M C [illegible] which has [illegible] on the lines of the regular [illegible] as far as [illegible] the only [illegible] of the [illegible] temporary [illegible] in the war and who are subscribers to that Fund This requires a large capital sum and involves considerable liabilities extending over many years Worthy as such an object is in itself, it does not deal with the immediate distress at all.

A scheme which appears to be strongly supported proposes to deal with this temporary distress by way of loans For such a purpose a very large sum will be necessary It is a scheme which no doubt would be very appropriate for certain cases, but experience has shown that a loan fund is very difficult to administer satisfactorily Loans too, require time for arrangement, and in many of the most urgent cases time is pressing and there may be no security upon which loans can be safely raised In most cases what is required is immediate help and often to a substantial amount It is this class with which the Royal Medical Benevolent Fund is already dealing, so far as its means permit from its Emergency Fund, for which a special appeal was issued last week This department of the Fund is a going concern and it only needs larger resources I have not seen that it has been proposed to form any new fund upon the same lines, and on general grounds such duplication is neither necessary nor desirable The profession wants I am told a workable scheme, and I make this suggestion in the belief that this plan would be the simplest and least expensive way of dealing with the problems that have arisen —I am Sir, yours faithfully,

Wimpole-street W July 18th 1916 SAMUEL WEST

THE ODOUR OF PAINT AS A CAUSE OF PLUMBISM

To the Editor of THE LANCET

SIR —In your annotation of May 27th, in which my article in the same issue on the Odour of Paint as a Cause of Lead Poisoning is referred to the question of cooking utensils as the source of the lead was put forward I had previously inquired into this but on being told that only iron saucepans were used I went no further into the matter, not realising that this domestic article was "tinned" On later investigation I found that of two iron saucepans in use (the ordinary tinned variety) one was to all appearances sound and gave no ocular evidence of lead, the other, smaller and more frequently used had at the bottom half its area covered with what looked very like solder cutting and glistening like this alloy Its presence was explained by the saucepan having "caught" at some time I filled it with rain water and to make sure of this being strongly alkaline added some soda which is sometimes done in the cooking of vegetables The water was then boiled for three hours and a sample was sent to the Clinical Research Association who reported that the specimen was examined for lead with entirely negative results With regard to other cooking articles the frying pan in use is blameless and no enamelled ware is used Against the saucepan being the source of the poisoning is the negative report and the fact that although in continuous use the patients are now well I am informed by a tinman that tinning consists in running on to the inside of the pot a mixture of lead and tin I believe in equal proportions It therefore puzzles me that lead does not get into the system more frequently than it does because it must surely take some time for a protective covering to form and render the alloy innocuous —I am Sir yours faithfully

HENLEY H MOYLE M R C S

Bentridge Somerset July 7th 1916

MARY MURDOCH MEMORIAL LOAN FUND

To the Editor of THE LANCET

SIR —This fund has been raised to perpetuate the memory of Dr Mary Murdoch her high professional standard and the inspiration and encouragement she was to her colleagues and friends By its means it is hoped that the remembrance of her work for women will not pass away with the generation of those who have known and loved her

The committee which has been formed to administer this fund is prepared to grant loans of £100 or less free of interest so as to give women doctors some financial help at a time when they may specially need it Such special need might be during the early years of establishment in

practice, to enable them to study some special subject or purchase some particular apparatus, &c , thus making their work more valuable and efficient

This fund will be open to all medical women but special preference will be given to those who have been trained at the London School of Medicine for Women, which was Dr Murdoch's own school

All applications will be regarded as confidential, and should be made to the Hon Mrs Franklin, 50, Porchester terrace, London W

I am, Sir, yours faithfully

H FRANKLIN,
Hon Secretary and Treasurer to the Mary Murdoch Memorial Loan Fund

July 17th, 1916

MEDICAL WOMEN'S FEDERATION

To the Editor of THE LANCET

SIR,—Owing to an oversight in proof correcting on my part there is an error in your sympathetic paragraph on the formation of the Medical Women s Federation The word "President" following the signature of Dr Helen Boyle should have been deleted It refers to one only of the federated associations—viz , the Registered Medical Women s Association None of the officers of the Federation have been appointed —I am, Sir, yours faithfully,

JANE WALKER,
Secretary and Treasurer (*pro tem*)

Harley street W July 17th, 1916

THE TREATMENT OF OSTEO-ARTHRITIS BY CONTINUOUS COUNTER IRRITATION

To the Editor of THE LANCET

SIR,—I have read with much interest Mr Wheeler s paper on operative treatment of osteo-arthritis in THE LANCET of June 24th

It is a matter of extreme regret to me that so few writers allude to the method of continuous counter irritation, as recommended by Dr P W Latham when dealing with arthritis He writes [1] "Upon the foregoing data it is not unreasonable to assume that the joint troubles in rheumatoid arthritis are due to spinal congestion or chronic myelitis chiefly affecting the ganglion cells of the anterior horns, but extending also, when the disease is associated with glossy skin, to the ganglion cells in the posterior horns If this is the case, the natural inference would be that, in the earlier stages of the malady at all events, the treatment should be directed to the abatement of this spinal congestion, and that probably this can be most effectively done by cupping or blistering the spine " I have personally practised this for over 18 years in all classes of cases of arthritis whether rheumatoid, osteo arthritic, or septic, and am convinced it is a most valuable means of arresting the disease process In fact I never think of advising surgical procedures of any kind until my patients have been carefully treated by this means and I am convinced the disease is for all practical purposes quiescent. In the decided majority of cases I am of opinion it is superior to vaccines or any other form of treatment

A vivid light has been thrown on how such measures act by Dr Gougerot, of Paris who states [2] that a mechanism exists by which germs and toxins are conveyed from various parts of the system to the skin, by the blood where *they are fixed and burnt up* Also that this mechanism may be heightened by artificial stimulation of the skin by means of irritants I am, Sir, yours faithfully

W J MIDELTON

July 12th 1916

OBLITERATIVE ARTERITIS AND LEAD POISONING

To the Editor of THE LANCET

SIR —In the issue of THE LANCET of June 3rd 1916 on p 1133 you publish in an annotation on the above subject an abstract of a case of arteritis obliterans due to lead poisoning reported by me The case was published in the Conferences of the Neurological Institute of New York, and it might be of interest to your readers to give them its outcome

The man was operated upon by Dr Dowd in New York in the early part of this year The left foot was amputated a few inches above the ankle During the operation the tourniquet which had at first been applied was removed and there was no bleeding from the cut surfaces or from the bony canals It was much as though one were operating upon a cadaver In spite of this apparent lack of circulation the man made a good operative recovery The muscular tissue that was removed at the operation was examined and found to contain large amounts of lead, and the cross section of one of the arteries showed an obliterating arteritis with hypertrophy of the middle coat of the artery together with the disappearance of portion of the intima, giving an appearance similar to that described by Kolisko

I am Sir, yours faithfully,

New York City June 25th 1916. WALTER TIMME, M D

TUBERCULOSIS AND SQUINT

To the Editor of THE LANCET

SIR,—I have found squint to be much commoner in tuberculosis both *pulmonary* and *extra pulmonary*, than in healthy members of the general population similar in respect of age sex, and social condition seemingly squint is a sign of *tuberculous predisposition* The figures are In 500 sputum positive consumptives 6 cases of squint, in 100 surgical tuberculous patients, 2 cases, and in 1050 non tuberculous persons, 3 cases

The only previous observation of this kind found is by no less an author than Homer It is interesting to think that the picture of Thersites—

> "Cross-eyed he was and halting moved on legs
> Ill pair'd his gibbous shoulders o er his breast
> Contracted pinch d it .. "—

was drawn from a tuberculous cripple of soured disposition and of that anti authoritarian bent which was less in favour then than now I am, Sir, yours faithfully,

July 13th 1916. W C RIVERS

FAT-HEADEDNESS

To the Editor of THE LANCET

SIR,—Your correspondent of July 15th, who screens himself under the guise of "Hospital Superintendent" makes the offensive assumption that I went to the committee I did not The hospital was represented by another official *From the tone of his letter I infer that "Hospital Superintendent" is eminently suited to be a member of the* committee I am, Sir, yours faithfully,

R G HIRN

The Laboratory Westminster Hospital, July 17th 1916

THE QUESTION OF PRIVATE OPERATIONS ON SOLDIERS

To the Editor of THE LANCET

SIR,—The following case may interest your readers This week a private (of independent means) in the Australian Forces was sent to me in consultation by a general practitioner as to the expediency of a certain operation This I agreed was necessary The patient wished it performed soon and expressed a special wish that I should perform it. I gave him at his request a fully explanatory certificate With this he asked for leave His superiors refuse him permission for a private operation giving as their reason that the Australian authorities are responsible for him and therefore if he has an operation it must be done by an Australian surgeon in an Australian hospital

This appears to me to be a very high handed way of dealing with a patriotic volunteer and incidentally a very poor compliment to British surgery

I am Sir yours faithfully

July 19th 1916 F P C S

[1] The Pathology and Treatment of Rheumatoid Arthritis THE LANCET April 8th 1911 p 9[illegible]

[2] Medical Press and Circular June 7th 1[illegible]

THE ALBERT BELGIAN HOSPITAL CALAIS —Lieutenant J J Stevens [illegible] subject to the approval of the Local Government Board [illegible] take up the post of medical officer to the Albert Belgian Hospital for six months

The War.

THE CASUALTY LIST

THE following names of medical officers appear among the casualties announced since our last issue —

Killed

Captain J C Rix, R A M C, attached to the Yorks Regiment was educated at Cambridge University and at Middlesex Hospital, and qualified in 1902 Before joining the R A M C in April, 1915, he was in practice at Tunbridge Wells and was formerly school medical officer to the local Education Committee

Lieutenant C P Kelly R A M C, qualified at Dublin in 1914 and was for a time senior house surgeon at Southport Infirmary He joined the R A M C in August 1915

Captain D W Smith R A M C, attached to the Manchester Regiment was educated at Edinburgh, at Guy's Hospital London, and at Berlin and qualified in 1901

Lieutenant R J Jones, R A M C attached to the Royal Welsh Fusiliers was educated at University College, Liverpool and qualified M B, Ch B, at Victoria University Manchester, in 1901 He was in practice at Cardiff before joining the R A M C

Captain L W Lawrence, R A M C, attached to the Royal Welsh Fusiliers was educated at Cardiff and at Edinburgh University, and qualified M B, Ch B Edin in 1910 He was deputy medical officer of health of the Bridgend Union at the time he joined the R A M C

Died of Wounds

Captain G O Maw, R A M C, was educated at Cambridge University and at St Bartholomew's Hospital, London, qualifying in 1912, and joined the R A M C in January, 1915

Lieutenant W R Wilson R A M C attached to the Seaforth Highlanders, was educated at Epsom College, afterwards obtaining the Haviland exhibition and proceeding to Cambridge He was a student at St Bartholomew's Hospital London qualifying in October, 1915, and immediately joined the R A M C

Captain F L Cleland R A M C, was educated at Queen's University, Belfast qualifying early in 1915 and shortly after joining the R A M C He was a well known international hockey and Rugby football player

Died

Lieutenant-Colonel F C Gabbett I M S was a student at St Thomas's Hospital London, qualifying in 1891, and was for some time Professor in Surgery at Madras Medical College

Accidentally Drowned

Captain E A Bell R A M C was a student of King's College London and qualified in 1902 He was in practice at New Brighton Cheshire, before joining the R A M C

Wounded

Captain F C Barnes R A M C, attached to the Royal Lancaster Regiment

Captain C G Scott R A M C attached to the Lancashire Fusiliers

Captain [illegible] Walsh, R A M C attached to the Royal Warwickshire Regiment

Captain J R M Whigham R A M C, attached to the East Lancashire Regiment

Captain A C Hallow R A M C attached to the Duke of Wellington's Regiment

Lieutenant M C Bridgman R A M C attached to the Rifle Regiment

Lieutenant L M Ingle R A M C

Lieutenant Colonel C H Hawkins R A M C

Captain [illegible] A Bellis R A M C attached to the Royal Inniskilling Fusiliers

Captain J M Elliott R A M C

Captain J W [illegible] Roberts R A M C attached to the East Lancashire Regiment

Missing

Captain D O [illegible] R A M C attached to the Suffolk [illegible]

Captain [illegible] R A M C attached to the [illegible]

Prisoner of War

Captain [illegible] R A M C attached to the [illegible]

Believed to have been taken Prisoners of War at Kut al-Amara

Captain P B Bharucha I M S
Captain E G S Kane, R A M C
Captain W L E Fretz R A M C
Lieutenant P E O'Donoghue, Indian Subordinate Medical Department

DEATHS AMONG THE SONS OF MEDICAL MEN

The following sons of medical men must be added to our lists of those who have fallen during the war —

Lieutenant G H W Holman, Wiltshire Regiment, son of Dr H J Holman, of Eastbourne

Second Lieutenant D F Don, Sherwood Foresters, son of Surgeon General Don, A M S, of Canfield gardens, London

Captain J M Stack, North Staffordshire Regiment, second son of Major E C Stack, R A M C, of Burton on Trent

Second Lieutenant E E Trevor-Jones, Rifle Brigade elder son of Major E J Trevor Cory, R A M C (T.F), of Cardiff

Captain J C Rix, R A M C, attached to the Yorks Regiment, third surviving son of the late Mr W H Rix, M R C S, of Tunbridge Wells

Lieutenant and Adjutant R R S Shaw, [illegible]h Staffordshire Regiment, only son of Dr T D S Sh[illegible] of Lichfield

Captain V G Duke, Royal Garrison Artillery, second son of the late Colonel A W Duke R A M C of Tunbridge Wells

Major A F Hess, West Yorkshire Regiment, eldest son of the late Dr A Hess

Captain R N Murray, Royal Inniskilling Fusiliers, only son of Mr G M P Murray F R C S, of Dublin

Lieutenant G M Dawson, King's Liverpool Regiment, second son of the late Dr T M Dawson, of Liverpool

Lieutenant M Stevens Worcestershire Regiment youngest son of Dr A F Stevens of Seaford Sussex

Captain T H Watts, Middlesex Regiment, son of the late Dr F Watts

Second Lieutenant G Wiglesworth Royal Flying Corps, only son of Dr J Wiglesworth, of Winscombe, Somerset

Captain E A Bell, R A M C son of the late Mr W Bell, M R C S, J P of New Brighton

Captain G O Maw R A M C, son of Dr G Maw, of Shortlands Kent

Second Lieutenant I A S Scott King's Own Scottish Borderers, youngest son of Dr W S Scott, of Withington, Manchester

Lieutenant J A A Fountain King's Own Yorkshire Light Infantry, second son of Dr E O Fountain of Ruislip, Middlesex

Lieutenant W G Millar, East Yorkshire Regiment eldest son of Dr W Millar, of Welton, Brough, East Yorkshire

Lieutenant W R Wilson, R A M C, attached to the Seaforth Highlanders only son of Dr W Wilson, of Forest Hill, S E

Captain L D Head, King's Own Yorkshire Light Infantry, younger son of Dr P T J Head, of Riverside, Staines, Middlesex

Captain H W Meade Royal Sussex Regiment youngest son of the late Dr W Meade, of Alverstoke, Hants

Lieutenant Colonel C C Macnamara, Royal Irish Rifles eldest son of Mr N C Macnamara, F R C S, of Chorley Wood Herts

Midshipman L J Bidwell R N eldest son of the late Mr L A Bidwell, F R C S of Upper Wimpole street London

Lieutenant A E Spencer Sherwood Foresters, only son of Dr F M Spencer, of Builth Wells, Radnorshire

MENTIONED IN DESPATCHES

The names of the following medical men are mentioned in despatches received from General Sir Charles Monro dealing with the operations of the Mediterranean Expeditionary Force and from General Sir John Nixon dealing with the operations in Mesopotamia under the command of Major General C V F Townshend C B D S O —

General Sir Charles Monro's D[illegible]

Lieutenant-Colonel A R Allridge C S I R A M C, Reserve of Officers Surg Gen W G A Bell C M G Lt Col H A Bray R A M C C J B C Freeman (T F) Maj (temp Lt Col) T P Jones I A M C Lt-Col (temp Col) A J C Kelly I A M C Lt Col R H Lace A D (T F) Lieut Surg-Gen W G Maj (temp) C M G C J C C Reilly I A M C Maj (temp Lt Col) W M B Spaeth R A M C Surg Maj C Farrant W Sym Surg Maj J L Fitzgerald I Lancs Fus

Lieutenant-General H H Cox—Lt-Col L B Foale C M G Lt-Col L Hunter Lt Col T C Mackenzie D S O Lt Col G S C Thom (T F) Lt W H Wi[illegible] Maj F R C [illegible] Lancs Fus Maj (temp Lt Col) J R Lewis Maj (temp Lt Col) C H Hickey C M G West Lancs Fus (T F)

Maj (temp Lt Col) A McMunn Maj A W Moore 2nd S Midland Bde Fd Amb (T F) Temp Maj (temp Lt.-Col) H Richardson Scottish Horse Mtd Bde. Fd Amb (T F) Capt J Anderson Capt R G Archibald Capt (temp Maj) H S Beadles London Mtd Bde Fd Amb (T F) Capt J A Bennett Capt L C Bruce (T F) Capt (temp Maj) E T Burke Spec Res Capt T S Eves Capt J F Farrow (T F) Capt E D Gairdner (T F) Capt A Graham (T F) (died of wounds) Capt (temp Maj) C Lovell (Spec Res) Capt W Mathieson Capt H F Panton Capt R Robeson Surg Capt W T Rowe Capt L R Shore Capt O Teichmann (T F) Capt W T Torrance 1st S Midland Bde Fd Amb (T F) Temp Capt G S Blandy Temp Capt A Bremner Temp Capt E R G Greville Temp Capt. T E Hammond Temp Capt. F Harris Temp Capt W H Laslett Temp Capt M A Macdonald Temp Capt W N Bishworth Temp Lt C T Galbraith Temp Lt E C Mackay Lt (temp Maj) L. M V Mitchell Highland Mtd Bde Fd. Amb (T F) Temp Lt. G Walker

Royal Navy—Surg W Bradbury R N (*Hawke Bn*)

Medical Units—Surg J H Burdett R N Staff Surg E B Kenny R N Temp Surg C F Mayne R N Temp Surg C H S Taylor R N Temp Surg M Onslow Ford R N Temp Surg G Hamilton R N

Australian Army Medical Corps—Lt Col A H Sturdee C M G V D Lt Col C T C de Crespigny Maj G W Barber Maj A V Fullerton 2nd Bn Capt F T Brennan 11th Bn Capt A V Honman, Capt J J Black 6th Bn Capt (temp Maj) R A Campbell Capt H V I Conrick Capt C W Thompson 1st Bn

Canadian Army Medical Corps—Col J A Roberts Lt Col E G Davis C M G Lt Col E I Williams

Indian Medical Service—Maj W R Battye D S O Maj N S Wells Capt T J C Evans Capt G S Husband 9th Bhopal Infantry Capt O J Stocker

Indian Subordinate Medical Department—Sen Assist Surg Bhagwan Singh (attached 14th King George's Own Ferozepore Sikhs) 1st Cl Sub-Asst. Surg. Daulat Singh (attached 21st Kohat Mountain Battery) 954 1st Cl Sub-Asst Surg Ajudhya parshad Misir (13th I F A.); 1st Class Sub-Asst Surg J Abraham 1062 1st Class Sub-Asst. Surg Muhammad Hussain (108th I F A) 1115 1st Cl Sub-Asst Surg Ishar Singh (103th I F A) 1123 2nd Cl Sub-Asst. Surg Shankar Lal (35th Sikhs) 1391 3rd Cl Sub-Asst Surg Hasan Din Dar (108th I F A) 1393 3rd Cl Sub-Asst Surg Hari Chand (Bannu Brigade) 3rd Cl Sub-Asst Surg S B W Murphy

General Sir John Nixon's List

Medical Services—Maj F V Aylen R A M C Maj E F F Baines I M S Maj C H Barber I M S Capt S J Barry R A M C Capt P B Bharucha D S O I M S Lt Col H O B Browne Mason R A M C Capt A S Cane R A M C Capt. J A Cruickshank I M S Lt Col J F Donegan C B R A M C Col P Hehir C B I M S Lt Col J Hennessy C B R A M C Maj F C Lambert R A M C Capt R K Mallam R A M C Capt A T J McCreery R A M C Capt K K Mukerji I M S Capt L Murphy R A M C Maj W MacM Pearson I M S Capt M L. Puri I M S Maj C C O Shaw I M S Lt W C Spackman I M S Capt J Startin R A M C Maj C H Watson I M S Capt. G Wilson R A M C

Indian Subordinate Medical Department—1st Cl Asst Surg N P Shemain 3rd Cl Asst Surg E A Cotton 3rd Cl Asst Surg D L Mackay 4th Cl Asst Surg A E A. Phaure 4th Cl Asst Surg S A De Souza 4th Cl Asst Surg F H J Rowley Gen List; 4th Cl Asst. Surg M J Nicholas 4th Cl Asst Surg L B Hole 1st Cl Sub-Asst Surg Reuben Benjamin 1st Cl Sub-Asst Surg A D Dul Basit 1st Cl Sub-Asst Surg Mitthu Lal Sub-Asst Surg D V B Butt 1st Cl Sub-Asst Surg, Kesar Singh

The name of Surgeon J P Berry, R N is mentioned in an Admiralty despatch dealing with sea patrol work for his services in the action between *H M S Alcantara* and the German commerce raider *Greif* which resulted in the enemy vessel being sunk, in February last

THE CENTRAL MEDICAL WAR COMMITTEE

Meetings of the Committee were held on Wednesday, July 19th, and the following day to consider appeals for exemption from military service

It was agreed to remit to the Executive Committee a suggestion that a list of the medical men who have gone on active service during the previous week should be sent to the medical journals for publication, the list being classified according to areas

The Committee of Reference of the English Royal Colleges

The work of the Committee of Reference of the English Royal Colleges in assisting the Central Medical War Committee has been of great value, a difficult and delicate part of the labours of the central body has been much facilitated thereby The constitution of the Committee of Reference it will be remembered is as follows Dr Frederick Taylor Sir Richman Godlee Dr W Pasteur Dr Sidney Martin Dr H G Turner Mr W F Haslam Mr D Arcy Power and Mr Charles Ryall with Mr Hallett as honorary secretary The function of the Committee is to advise the Central Medical War Committee as to exemptions of medical men attached to the hospitals in the London County Council area either as members of the honorary staffs or as teachers or as residents who may be called up for service The Committee of Reference has been able to keep in touch with the Central Medical Committee by means of a joint committee composed of Dr Pasteur Dr Sidney Martin Mr Ryall and Mr Hallett (secretary) representing the Committee of Reference and Dr C Buttar, Mr T Jenner Verrall Mr F B Terry and Dr Alfred Cox and Mr Bishop Harman (secretaries) representing the Central Medical War Committee By the deliberations of this jointly constituted body the Central Medical War Committee is placed in a position to acquire much preliminary information with regard to the suitability for commissions in the Royal Army Medical Corps of medical men attached to the staffs of hospitals and medical schools The questions on which the Committee of Reference have been and will be, able to guide the Central Medical War Committee are many of them of considerable complexity For example, there is no known standard for the composition of a general or special hospital, in accordance with which it can be stated that a staff of a certain number assisted by residents of a certain number is required for a certain number of beds To some extent it may be said that no such pattern can exist inasmuch as special hospitals have special requirements and general hospitals vary largely in themselves—distance from the residential centre of the staff or association with a medical school, being, for example two things which may entail an apparently large personnel The Committee of Reference will make allowance for such things in dealing with the situation on general lines if the information is freely given to them by the institutions concerned This, we are certain, will generally occur but it is a fact that the attitude of all hospitals in asking for exemption of their staffs has not been precisely similar, far more requests for exemption having come from some institutions than from others Endeavours to treat such matters fairly will probably lead to some of the exemptions granted being granted only for short spaces of time In this way opportunity will be afforded to consider the plight of institutions which assert themselves to have been unduly depleted

SCOTTISH MEDICAL SERVICE EMERGENCY COMMITTEE

At the monthly meeting of the Committee held in the Royal College of Physicians Edinburgh on July 15th the convener reported that it was expected that the July contingent joining the R A M C would be about 100 The Register had been carefully gone over and of the medical men in Scotland who having qualified in 1896 or subsequently, were possibly under the age of 41 only 69 had failed to register their names as willing to accept a commission if called upon to do so Their names had been transmitted to the military authorities

THE ROYAL ARMY MEDICAL CORPS AND THE GREAT ADVANCE

Early in the course of the fighting in what will presumably come to be called the battle of the Somme the Commander in Chief, Sir Douglas Haig issued a Special Order of the Day possessing the greatest significance to all our readers The Order was read on parade to all medical units by instructions from the Deputy Directors of Medical Services, to whom it was addressed in these words —

'The Commander in Chief directs me to convey to you and through you to the directors and all concerned under them his high appreciation of their hard work and the efficiency of arrangements for dealing with the medical aspect of the present situation

This commendation from Sir Douglas Haig will be a legitimate source of gratification to all the medical profession A preponderating part of the work of the Royal Army Medical Corps is necessarily being done by temporary or Territorial officers serving under and with the Regular officers so that the corps in its present state is as new as any part of our great Expeditionary Force How highly the organisation and personnel of the corps may have been tried during the early days of the grand advance of the Allied Forces on the Western front can be measured to some extent by the casualty lists and the fact that the number of wounded who will be in a brief space of time a match with their fighting comrades is so very large [illegible] commentary upon Sir Douglas Haig's Order [illegible] details of collection [illegible] wounded proceeded swiftly and [illegible] produced by the [illegible] the helmets [illegible] as we have said from the [illegible] the case of the highest value in saving life

OBITUARY OF THE WAR

WALTER SEYMOUR ARMSTRONG M R C S ENG,

CAPTAIN ROYAL ARMY MEDICAL CORPS

Captain W S Armstrong who was killed in France on May 31st at the age of 42 years was the youngest son of the late Rev William Armstrong, incumbent of St Mark s, Dalston, and of Mrs Armstrong of Twyford Lodge Putney He was educated at St George's Hospital taking the Conjoint Board qualification in 1903, after which he acted as assistant medical registrar at his own hospital He subsequently went to Labrador and Newfoundland where he was surgeon of St Anthony s Hospital and surgeon in charge of the Indian Harbour Hospital and a magistrate A fellow practitioner in Labrador now at a casualty clearing station in France writes of him ' Armstrong s keenness his devotion to duty, and his thoughtfulness for the people, had greatly endeared him to all His loss will be greatly felt in Labrador ' Another medical friend writes of him Whilst his love for his profession was the dominating factor, he made himself universally popular in all circles and his death has removed from the profession one who devoted his health and strength in its service ' Towards the end of 1914 he applied for a commission in the R A M C and served first with the British Expeditionary Force in France in 1914-15 and then with the Mediterranean Force returning to France in April last where he remained until his death

Captain Armstrong was a man of wide experience who had travelled much and who had a large circle of acquaintances He married in 1905 Florence daughter of the late Mr Ralph Tunnicliffe of Leigh Lancashire who survives him

KENNETH HARRISON ALLOA KELLIE M A M B B C CAMB M R C P LOND

CAPTAIN ROYAL ARMY MEDICAL CORPS

Captain K H A Kellie who was killed in action on June 25th aged 31 was the youngest son of the late George Kellie of Sutherland Avenue W and Shanklin Isle of Wight and brother of Lawrence Kellie the composer He was educated at Westminster School Caius College Cambridge and St George s Hospital also studying in Paris New York and Boston He qualified as M R C S and L R C P Lond in 1903 M B Camb in 1905 and M R C P Lond in 1908 After holding the posts of clinical assistant for out-patients at Paddington Green Children s Hospital assistant house surgeon at St George s Hospital and house physician the Victoria Hospital for Children he was appointed in 1908 assistant physician at the Royal Free Hospital for Children and in 1912 [illegible]

[illegible] Hospital [illegible] Medical Corps [illegible] Hospital [illegible] a member of the St Pancras borough council and chairman of its public health committee and a prominent member of the West St Pancras Conservative and Unionist Association

At the beginning of the war he served as a special constable, but in April last year he gave up his work in London and took a temporary commission as lieutenant in the R.A.M C, and was promoted captain on completing a year s service. Originally Captain Kellie was attached to the Guards Brigade but on his return to the front last April he was transferred to the Canadian Contingent as second senior medical officer He was a well known oarsman, and stroked the London Rowing Club boat at Henley and other regattas Captain Kellie was a sound, practical physician who devoted much time and patience to his work He was an excellent colleague in every way—amiable, cheerful and always willing to help to the best of his ability He will be very greatly missed by his friends, his colleagues, and his patients

GEORGE HARRY MELVILLE DUNLOP, M D, F R C P EDIN

MAJOR, ROYAL ARMY MEDICAL CORPS

Major G H M Dunlop who died at a Red Cross hospital in France on July 3rd, at the age of 57 years was the son of the late James Usher Dunlop He was educated at the Edinburgh Collegiate School and Edinburgh University, graduating in 1880

His first appointment was as house surgeon to Leith Hospital, and he afterwards held a similar appointment at the Sick Children s Hospital, Edinburgh, and was later clinical assistant in the skin and gynecological wards of Edinburgh Royal Infirmary Major Dunlop was physician to the Royal Blind Asylum, senior physician to the Royal Hospital for Sick Children an appointment which carried with it a lecturership on diseases of children in the University, and was also examiner in medicine and in diseases of children at the Royal College of Physicians of Edinburgh to the Council of which he was elected when comparatively young About a year ago he left for France as a major in the Royal Army Medical Corps in company with Professor Alexis Thomson, of Edinburgh University, to take charge of the medical side of a general hospital He did important work in different places in France until his untimely death as a result of pneumonia after a short illness

Major Dunlop had made numerous contributions to medical literature the most important being a report on 500 cases of pneumonia in children He was a good teacher his clinical lectures were excellent in substance and made attractive to students by lucid exposition and the lecturer s practical knowledge of his subject Major Dunlop took an active part in medical affairs in Edinburgh combining with strong personal likes and dislikes a broad minded view of the subjects he discussed He is spoken of by his colleagues as a good friend a pleasant companion and a trusted physician who will be greatly missed by both patients and friends He leaves a widow and a son and daughter

---

LORD KITCHENER NATIONAL MEMORIAL FUND—No more fitting way of commemorating Lord Kitchener s name could have been devised than the creation of a fund on behalf of officers and men of the Royal Navy and Army who have been disabled or rendered [illegible] by the war The scheme for which the Lord Mayor of London seeks support is to be [illegible] and perpetual and will be a source to which the whole country can look for relief after the war [illegible] immediate relief [illegible] are over and forgotten [illegible] sent to the Lord Mayor at the Man on [illegible]

THE PRACTICES OF ABSENTEE MEDICAL OFFICERS

We outlined briefly a fortnight ago the circumstances which have to be taken into account in any scheme designed to conserve for their owners the private practices of members of the medical profession who have accepted or are accepting commissions in the Royal Army Medical Corps The subject is one which has been always in the mind of both the Central Medical War Committee and the British Medical Association, and a fortnight ago a scheme was laid before the former body for the institution of Local Committees to whom there should be submitted any agreement under which an absentee medical practitioner could contract with the deputy for carrying on his work to the advantage of all concerned practitioners and public We pointed out that no one scheme could exactly fit all kinds of practice, every medical man's practice being to some extent an individual affair requiring individual treatment if its preservation and cultivation were to be of the best

The Central Medical War Committee had several schemes under close consideration, each of which was likely to meet with acceptance in some areas, but not to meet the approval of practitioners in others It now draws attention to the following general principles which it considers to be of great importance —

(a) No scheme will be satisfactory which has not behind it (i) the goodwill of the men who are to work it; (ii) the confidence of the men who are going on active service (iii) the strong moral support of the L.M W C This presupposes that the scheme has been fully discussed at a meeting of the whole local profession

(b) It is preferable that there should be a legal agreement between the absentee and his deputy or deputies though it is recognised that this may be impracticable in some cases.

(c) The L.M W C should in such an agreement be vested with the power of dealing with any disputes that may arise between the absentee and his deputies the decision of the Committee to be binding the Committee should also have the power of appointing another deputy in case of need

(d) Any such agreement should contain a provision whereby the absentee is indemnified against all acts of negligence committed by the deputy

(e) The scheme and agreement should in all cases bind the deputies to refuse to act as the medical attendant of the patients they have attended for the absentees until a specified time (one or two years) after the absentees return.

In September, 1915, the Central Medical War Committee issued a circular (W 3) dealing with this subject It was indicated that the men going on active service had a right to expect that their interests would be protected by those who remained at home, and it was suggested that where a locum tenens could not be provided the work should be done by a division of the money earned by the practice of the absentee on the following lines (a) Town practices—an equal division of the proceeds between the absentee and his deputy or deputies, (b) combined town and country practices—probably three-eighths to the absentee and five eighths to the deputy, the latter paying the expenses, (c) country practices where travelling expenses are important—a quarter to absentee three quarters to the deputy

The first agreement of a legally binding nature brought to the notice of the Central Medical War Committee was drawn up in Holland (Lincs) area and embodies the suggestions made in Circular W 3, with the addition of a clause to protect the interests of a practitioner who dies on service The clause runs as follows —

In the event of the death of a practitioner on service his practice shall be carried on for one year after that date or until his representatives give notice to one or more of the practitioners at home that they have disposed of his practice whichever shall first happen and in the meantime the representatives of the deceased practitioner shall be entitled to receive and shall be paid the same remuneration as the deceased practitioner would have been entitled to if he had during such time continued to be a practitioner on service

The following is a detailed scheme which has received a certain amount of support and which is published by the Central Medical War Committee for comment It is a scheme formulated by Dr T Campbell of Wigan and has met with a good deal of support in Lancashire It embodies a novel method of arriving at an equitable remuneration although the result is roughly the same as the equal division of proceeds between absentee and deputy in a town area suggested in circular W 3 The scheme regards as essential that the absentee shall in all cases appoint a deputy or deputies who shall be responsible for the whole of the practice There are points in this scheme that may commend it particularly to Local Medical War Committees in industrial areas

Scheme for the Care of the Practices of Medical Men on Active Military Service

1 Any medical man deciding to take up a commission or being called up for ordinary military service (hereinafter referred to as the absentee) to at once give notice to the Committee referred to in paragraph 18 hereof and such notice shall signify whether the absentee has made arrangements with a medical practitioner or practitioners (hereinafter called the deputy) to carry on his practice in his absence and if arrangements have been so made the name or names or address or addresses of such practitioner or practitioners

2. If at the date of the said notice the absentee has not made arrangements with a deputy he should as soon as he has so done forward to the same Committee the name and address of the deputy

3. If the absentee fails to appoint a deputy then the said Committee on the request of the absentee or of his wife or other authorised representative can make an appointment. The authorised representative of the absentee shall be given power of attorney to act on his behalf

4 The remuneration of the deputy to be agreed as by the absentee but in case no arrangement as to remuneration is made or in case of an appointment by the said Committee the remuneration to be on the following scale—namely £1 1s per week for every £100 gross receipts of the practice during the 12 months ending Dec 31st immediately preceding the deputy's appointment, with a maximum weekly remuneration of £12 12s and a minimum of £3 3s The said remuneration to be readjusted every six calendar months in accordance with the scale fixed by this paragraph on the gross receipts for the 12 months preceding the date of readjustment Any fees payable by the Army authorities to the absentee for any appointment held by him shall not be included in the gross receipts of the practice during the preceding 12 months unless the work of such appointment be taken over and carried out by the deputy

5. The deputy to defray out of his remuneration all the working costs and expenses of the absentee's practice except the rent rates and taxes of the absentee's main and branch surgeries

6 The deputy to keep each day a strict account of his visits consultations dressings operations and medicines with the names and addresses of the patients on whom attendance is made by entering same up in absentee's day book differentiating between private patients and panel patients (if necessary) and to leave such day book open to inspection of the absentee's wife or other representative who must enter same into ledger at least once a week

7 The record cards of panel patients to be accurately kept by the deputy

8. The deputy to keep an accurate account of all monies received by him on account of the absentee's practice and to hand such monies to the absentee's wife or his other representative on the first of each calendar month Any clerical work connected with the absentee's practice other than that necessitated by paragraphs 6 7 and 8 hereof to be done by the absentee's wife or other representative at the absentee's expense

9 Cards to be exhibited in the surgeries (main and branch) of both deputy and absentee clearly stating that the absentee is away on active service and that the deputy is attending to absentee's practice and requesting the patient to inform the deputy that he is a patient of the absentee

10 As far as conveniently possible the patients of the absentee to be seen at the surgeries of the latter and the deputy to hold a surgery daily at the absentee's main surgery

11 The absentee before leaving his practice to make out a list of his private patients with their addresses and to submit such list to the deputy and such list unless questioned within 14 days by the latter to be final evidence that the patients whose names appear on that list are the private patients of the absentee A copy of such list to be forwarded by the absentee to the said Committee

12. Proper and accurate accounts of the absentee's practice to be sent out by the absentee's wife or other representative in the name of the absentee with a request that cheques be drawn in favour of the absentee

13 All accounts of the gross receipts of the absentee's practice to be kept by the absentee's wife or other representative and to be open to the inspection of the deputy or his representative on request at any reasonable hour of the day

14 The absentee should be indemnified against all claims demands or actions arising out of the negligence or wrongful act or default of the deputy (It is deemed advisable that absentee and deputy be member of a protection society and insured against damages)

15 Subject to the provisions of the next clause the deputy to give six calendar months notice of his intention to resign to the absentee's wife or other representative and also to the said Committee who undertakes in the absence of an appointment being made by the absentee or his wife or other representative of a fresh deputy the said Committee to make an appointment

16 In case the absentee die or be killed or return home to take up of attending to his practice the deputy to continue to attend to the absentee's practice for at least a period of 12 months after the date of such death or of such return home as the case may be or until the absentee's practice is disposed of by sale the deputy during this period to continue to receive remuneration as provided in paragraph 4 The deputy to give every facility and information to an incoming successor

17 The deputy shall not attend or otherwise professionally advise or treat any of the patients on the list referred to in paragraph 11 hereof for a period of one year after the deputy has ceased to carry on or otherwise to be associated with the practice of the absentee

18. A Committee to be formed by the practitioners of the district if thought advisable by the Local Medical War Committee and to have relegated to it by the agreement entered into by the absentee and deputy such powers as will permit it to deal with all disputes whatsoever arising between the absentee or his representatives with regard to any question affecting the absentee's practice or the conduct of the same by the deputy and the decision of such Committee to be binding on both parties

The view of the Central Medical War Committee agrees with our previously expressed conclusion that it is not possible to embody in one or even two or three detailed schemes plans likely to meet with acceptance in every case It is however hoped that the publication of the subject will lead to the possibility of sensible arrangements being made by Local Committees which while differing in general principle will differ in details according to the wants of the locality

ARRANGEMENTS FOR ARRIVAL OF THE WOUNDED IN MANCHESTER

It would obviously be impossible for us to publish anything like a detailed statement concerning the casualties incurred in the great advance but we may say that the account given by our Manchester correspondent tallies in its [illegible] features with the information in our possession. He writes —

C[illegible] and stretching up patients amongst the first to leave the trenches after the artillery bombardment on July 1st reached Manchester on June 8th. Some of the wounded had been fighting for three or four days. Their wounds were caused for the most part by machine gun fire and shrapnel. Replying to an observation that many of them were wounded in the legs and feet a soldier with a badly crushed head the result of shrapnel, said "Nearly all the leg and foot wounds were received in the first 150 yards advance. The German machine guns when trained upon us were fired from the trenches so that the muzzle of the gun would be on the ground level and the bullets would sweep across close on only a few inches from the ground. The majority of the cases of injury were comparatively slight. Infantry cases predominate amongst the wounded sent to Manchester. The expeditious with which the wounded are detrained and placed in motor cars to be transported to hospitals at Stockport, Sale, Ashton, Withington, Fallowfield and more distant centres is wonderful. One train of [illegible] cases was emptied in eight minutes and within half an hour the wounded were receiving the necessary attention in the hospitals. As a rule about one hour is required for the evacuation of a full ambulance train with mixed cases. Trains brought some of the men who took part in the fighting for Contalmaison only the day previously. Up to the present a portion of the accommodation of the General Hospital in Whitworth street has been reserved for officers. Since wounded began to arrive from the regions of the Ancre and Somme via Southampton the General Hospital in Whitworth street and the hospitals in High street and Worsley Hall have been reserved exclusively for officers.

FREE MASONS' WAR HOSPITAL.—The Masonic Nursing Home Committee having secured the premises of the Chelsea Hospital for Women have given it as a fully equipped military hospital to the War Office through the Red Cross Society. A circular letter issued by the Lord Mayor of London and others has been issued for funds to enable the project, the belief being expressed that the brethren will welcome the opportunity of identifying the craft with an important and benevolent work. The hospital will be fully equipped on modern lines and will provide 50 to 60 beds. It is intended to open the premises with the next few weeks and the Military Advisory Committee is already [illegible] the services of a competent resident medical officer. After the war it is intended to transform the hospital into a maternity home. The address of the Masonic Nursing Home Committee is 8 Craven House, [illegible]

NORTH MIDDLESEX DISTRICT.—A report from [illegible] the demand for [illegible] Hospital [illegible] require [illegible] the [illegible] which [illegible] 125 at the end of [illegible] difficulty [illegible] the great demand [illegible] the hospital [illegible] officer of [illegible]

Medical News.

UNIVERSITY OF LONDON.—At the Second Examination for Medical Degrees Part II., held recently the following candidates were successful —

Wilfred Mark Anthony, St. Thomas's Hospital; Marjorie Back, London (Royal Free Hospital) School of Medicine for Women; Norman Dyer Ball, University College; Thomas George Doughty, Barnet General Hospital; Jacob Brode, London Hospital; Katherine Mary Cogan, London (Royal Free Hospital) School of Medicine for Women; Andrew Norman McDavidson, Kings College; Thomas Carey, University College, Cardiff and University College; Abraham Eldrow, London Hospital; Sylvia Victoria Elman and Gwenyvron Mary Griffith, London (Royal Free Hospital) School of Medicine for Women; Lawrence Handy and Charles Percival Langton Hewer, St. Bartholomew's Hospital; Clifford Venning Irant and Myrddin Emry Jones, St. Thomas's Hospital; Vivian Emrys Jones, University of Liverpool; Ernest Francis Kelly, Guy's Hospital; Maurice Lauren, University College; Simon Sally Lieberman, James Galway McCann and Douglas McClean, St. Thomas's Hospital; Farid Morgan, St. Mary's Hospital; Gordon Frank Peters, Guy's Hospital; Ruth Wade Pilmer, London (Royal Free Hospital) School of Medicine for Women; Morgan Cecil Pritchard, University College; Leonard Duncan Pringle, St. Bartholomew's Hospital; Percival George Quin and Walter Ernest Karl Aquilmann, University College; Ronald Simon Ralph, Guy's Hospital; Jessie Craig Ritchie, London (Royal Free Hospital) School of Medicine for Women; Edward Snow Rose, St. Bartholomew's Hospital; William Henry Simmons and Herbert William Southgate, Guy's Hospital; Victor Alexander Trevor Spring, St. Bartholomew's Hospital; Mary Sylvia Stocks, London (Royal Free Hospital) School of Medicine for Women; Norman Beaufoy Thomas, St. Bartholomew's Hospital; and Robert Walter Warwick and Sir Tow Weng, Guy's Hospital.

* Distinguished in Physiology.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At the quarterly examination in Practical Pharmacy held on July 6th and 7th the following candidates were successful —

John Arnold Mooney Alcock, Guy's Hospital; Keith Edward Atterbury, St. Mary's Hospital; Douglas Albert Baron, Middlesex Hospital; Noel Arthur Hamilton Barrow, Guy's Hospital and private study; Mark Louis Bass, London Hospital; Alexander Herbert Bean and Hugo Boger, University College Hospital; Edward Victor Bellew, St. Mary's Hospital; Anna Bridge Bremner, Royal Free Hospital; Osmond Hayman Brown, Charing Cross Hospital; Louis Everard Reginald Carroll, St. Bartholomew's Hospital; Marjorie Carrew Chapple, Royal Free Hospital; Dudley Hugh Cossell, St. Bartholomew's Hospital; Walter Tyrrell Cooper, Charing Cross Hospital; Ignatius Joseph Crutchley, London Hospital; Leslie Percival de Abrew, Ceylon Medical College and London Hospital; Mohammed Abdel Kader, E. Hennawy, St. Mary's Hospital; Cecil William Empey, London Hospital; Harold Bert Fields, University College, Cardiff; Barry Gordon, St. Bartholomew's Hospital; Maxwell Hall, Guy's Hospital; Lucian Hillard, London Hospital; Alfred Henry Prince Jones, Middlesex Hospital; James Trevor James, University College, Cardiff; Walter Hewitt Jones, Cambridge University and St. Mary's Hospital; Mohammed Abdul Rahman Khalifa, Guy's Hospital and private study; Donald William Lott, Oxford University and Middlesex Hospital; Oswald Fergus John McGowan, University College Hospital; Maud Hargrave, Birmingham University; Noel Herbert Seton Marsden, All at Jamaica; Marcinda, Reginald Stanley Millar and Joseph Oliver Roger Mungeam, Guy's Hospital; Eva Morton, Royal Free Hospital; James Abel Morton, St. Bartholomew's Hospital; Arthur Hubert Neckett, Guy's Hospital; Ellen Elizabeth Ovens, Royal Free and St. George's Hospitals; Arthur Gordon Owen, Guy's Hospital; Marjorie Phyllis Parker, Royal Free Hospital; James Cornish Parkes, London Hospital; Lesbia Norman Payne, Charing Cross Hospital; Thomas Meredith Payne, University College, Cardiff and St. Bartholomew's Hospital; Eugene Arthur Pearson, London Hospital; Beryl Pearson, Royal Free Hospital; Clifford George Jackson Pepper, St. Bartholomew's Hospital; Constance Dorothy Mary Hill, University College Hospital and private study; Percy John Goldwicke Sargent, St. Bartholomew's Hospital; Horace Henry Sayer, University College; [illegible] Alex Smith, [illegible] Middlesex Hospital; Philip [illegible] Hospital; George Ernest Stone, [illegible] Hospital; Percival Washington Symons, Middlesex Hospital; Guy [illegible] Tarring, Oxford University and Guy's Hospital; Harold Edward Thomas, University College Hospital; [illegible] St. Bartholomew's Hospital; [illegible] Hospital; Albert Charles Thomas, Cambridge University and Guy's Hospital; [illegible] Hospital; Ernest Vaughan, University College Hospital; and James Harry Williams, St. [illegible]

UNIVERSITY OF GLASGOW.—The following candidates [illegible] on July [illegible] received their degrees [illegible]

[illegible]

The following candidates have passed the examinations in Anatomy (A) and Physiology (P) for the degrees of Bachelor of Medicine (M B) and Bachelor of Surgery (Ch B) —

Carl Otto Anderson (P) James Baird* (A. P) Alexander Kidd Begg (A P) John William Stewart Blacklock (A P) Murdoch Brown (A P) James Caddies (A P) Alister Campbell (A P) James Gibson Campbell (A. P) John Gilchrist Coltart (A. P) Archibald Joseph Cronin (A. P) Robert Fletcher M A (A. P) Colin Macphail Forbes (A. P) Robert Adam Forsyth (A., P) George Keith Fulton (A., P) James Anthony Hamilton (A., P) John Hewitt† (A P) Robert Gold Howat (A P) Robert Paterson Jack (P) John Alexander Jenkins (A P) Samuel Hamow Wolf Kamerasse (A P) John Kirk M A B Sc (A P) James Campbell Laurie (A P) Barnett Levine (A.) Robert M Courtney (A P) Francis M Donald (A P) Frederick M Elwee (A P) Angus Maclean (A. P) Joseph Patrick M Millan (A P) Peter MacMurray (A P) Farquhar M Vean (A P) Robert Mair (A, P) John Mackean Maxton† (A. P) Livingstone Mitchell (A P) Modiri Silas Molema (A P) James Bennie Morrison* (A P) William John Payne* (A P) John Pollock (A P) Peter Crawford Rankin (A P) David Reid (A. P) Henry Alexander Ross (A P) William Howie Stevenson (A. P) Noel Eustace Stone† (A P) Joseph Turner Taylor (P) James Alexander Walls (P) Robert Kennedy Watt (A.) John Whitelaw M A. (A. P) and Stephen Young (A. P)

Women —Christine Calder Abernethy (A. P) Grace Hay Anderson (A), Susan Struthers Bryce (A P) Elizabeth Page Cameron† (A, P) Mary Turner Liddell Clark*† (A P) Emily Loudon Clow (A P) Veronica Catherine Jessie Davies (A P) Edith Dennistoun Dobbie (A. P) Margaret Hogg Grant† (A P) Lillias Beverley Hardie (P) Helen Hogg (A P) Elizabeth Smith Inglis (A.) Alice M Elwee (A P) Alice M Glashan (A. P) Evelyn Christina M Donald M Gregor (A. P) Mabel Mary Maclean (A. P) Agnes Hislop Macwhirter (A. P) Kathleen Nicol (A. P) Margaret Mitchell Paterson (A. P) Louisa Evelyn Pigeon (A P) Helen Lennie Ralston (A. P) Katherine Octavia Robertson (A P) Jane Elder Shortt (A. P) Elaine Bessie Stuart Stocqnart (A P) Marion Thomson (A P) Lilian Jane Taylor White (A P) and Helen Barr Wilson (A P)

* Distinction in Anatomy † Distinction in Physiology

Medical Jurisprudence and Public Health —Oswald Johnston John Wilson Maclean Angus M Alpine Scott, and James Livingstone Walker

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW AND ROYAL COLLEGES OF PHYSICIANS AND SURGEONS OF EDINBURGH —The examinations of the Royal College of Physicians of Edinburgh, Royal College of Surgeons of Edinburgh, and Royal Faculty of Physicians and Surgeons of Glasgow were concluded at Edinburgh on July 14th with the following results —

FIRST EXAMINATION

Edward James Allan Andrew Smith Irving Andrew Wood Smith and Peter Edwin Jalloch

Physics —Charles William de Villiers Pritchard Arthur William Hodder Noble John Murray and Albert George Rutherford Mackie

Biology —Albert George Rutherford Mackie

Chemistry —Sayed Chaleb and Arthur William Hodder Noble

SECOND EXAMINATION

Thomas Blaney Gordon Spivey Woodhead Hugh William Howatson Mayberry Hugh Carlson Thomas Ferguson Minford Harold Gengoult Smith and Buenaventura Ramirez

Anatomy —Jung Bahadur Singh

Physiology —Alice Fung a Ling

THIRD EXAMINATION

Bernard Malachy Lynam Don Alfred Walpole Daniel Cornelius Howard William Brownlee Watson Mahmoud Abdel Kader Mefreh Donald Stewart and William Fidler Mason

Pathology —Edward Digby Kinsey

FINAL EXAMINATION

The following candidates having passed the Final Examination were admitted L.R.C.P.L. L.R.C.S.E. L.R.F.P.&S.G. —Thomas Downie Renwick Shapoor Dinshaw Vania, Frank Bertram Macaskie Maurice Andrew White Arthur Leslie Gillin Alfred Hester Brooke Coghill John Ross Joan Edward Kitchen and Ethel Mary Dukes

Medicine —John Berry and Robert Woodside

Surgery —Edwin Butler Stanley Wall Hoyland Robert Woodside Paul Lucien Manuel Reginald Vincent Clarke and Edward Mervyn Lewis Morgan

Midwifery —Edwin Butler John Berry Iwan Davies William McIlroy Edward Annejain Paul Lucien Manuel Reginald Vincent Clarke Edward Mervyn Lewis Morgan Phebe Tripp Harry Morley and Owen Glendower Evan

Medical Jurisprudence —Edwin Butler Paul Vertannes Lloyd William Hughes George Patrick de Silva Benjamin Ajayi Young John Forbes Campbell Spearman Charles Swinburne and William Archibald Mein

UNIVERSITY OF MANCHESTER —The following gentlemen have obtained the Diploma in Public Health of the University of Manchester —

Peter Poulsen Cooper M B Ch B March Harry Nelson Cooney M B Ch B March Stanley Walker Maclean M B C B E [illegible] and William Hartley Tatersall M B Ch B March

UNIVERSITY COLLEGE LONDON —The following awards have been made in the Faculty of Medicine [illegible] Buckhill scholarship J I Padshah Upton scholarship D C Cowan medical entrance exhibition H L H [illegible] and A B Saunders

UNIVERSITY OF ST ANDREWS LICENCE IN DENTAL SURGERY —Arrangements have been completed for the inauguration in October of dental classes which will lead to the granting of a licence to practise dentistry The course of study will be held at the University College the Dundee Hospital, and the Royal Infirmary, Dundee

THE House of the Royal Society of Medicine 1, Wimpole-street London, W, will be closed for cleaning and library stock taking during the whole of August

A MIDWIVES BILL FOR IRELAND —The movement to promote a Midwives Bill for Ireland on lines similar to the Acts in force in England and Scotland is continuing. We have already noted that at a recent meeting of the President and Fellows of the Royal College of Physicians of Ireland a resolution was passed in favour of such action. The Council of the Irish Medical Association has now taken the matter up, and in pursuance of a resolution of the general meeting is taking steps to form a conjoint committee representative of all branches of the medical profession for the purpose of drafting a Bill The several medical societies and the two Royal Colleges have been asked to nominate representatives on this committee The Local Government Board is understood to regard the present as an opportune moment to move and that the prospects are favourable of an agreed Bill reaching the statute book The difficulty of drafting a measure satisfactory to everyone is borne in mind by the promoters, who hold that the English and Scottish precedents must not be followed too closely Conditions of practice in Ireland are very special ones particularly in country districts, and the position and responsibility of the Poor law medical officer will require special consideration

URGENT SURGICAL MATERNITY CASES —Our Belfast Correspondent writes I am pleased to announce that the City Corporation of Belfast who possess an excellent motor ambulance service worked by the fire brigade have now decided to rescind an absurd arrangement which prohibited the use of the ambulance for the removal to hospital of urgent surgical maternity cases occurring among the poor of the city On giving notice in writing or by telephone at the chief fire station any medical practitioner may now obtain the use of the ambulance for such cases free of charge, on condition that they are suitably accompanied

A public subscription has been started for the purpose of adding a wing in the form of a complete ward unit for children, to the Nantwich (Cheshire) Infirmary as a memorial to the late Canon W H Binney, who was vicar of the parish from 1886 to 1913

Lieutenant Colonel Francis Frederic Perry, C.I.E. F.R.C.S., has been appointed a knight of Grace of the Order of the Hospital of St John of Jerusalem in England

Parliamentary Intelligence.

HOUSE OF COMMONS

THURSDAY JULY 13TH

British Prisoners at Fuhlsbüttel

Mr MALCOLM asked the Under Secretary for Foreign Affairs whether he had received any reply to the last proposal to the German Government on the question of the treatment of British civilian prisoners at Fuhlsbüttel and whether he could add anything to his statement with reference to this matter —Lord LOUIS CECIL replied The substance of the German reply which has been received is as follows The German Government [illegible] repudiate the charge made by us that the [illegible] their obligations as to the supply of food to [illegible] prisoners of war [illegible] is supplied to civilian [illegible] rations furnished to all prisoners of war being [illegible] The report [illegible] made by Dr Taylor [illegible] verified and the result communicated [illegible] this latter [illegible] his visits to the camp [illegible] Dr Taylor [illegible] [illegible] to the officer in charge [illegible] quality of the food The German Government [illegible] [illegible] explain [illegible] men [illegible] food [illegible] not [illegible] [illegible]

If on grounds of reprisal we should in any way reduce the rations now supplied to German prisoners of war in this country the German Government propose not only to withdraw the permission for collecting parcels but also to prohibit the receipt of individual parcels the camp ration being then ordered so as to correspond with the measures taken by us The German Government declare themselves as not averse to the proposal which we communicated to them for the release of all British civilian prisoners of war but they consider that this could not take place on the basis of the release of a similar number of German prisoners by us, as such an exchange would encounter insuperable difficulties in regard to the selection of those prisoners who are to benefit by it A further communication from us on the subject will now be awaited To this note His Majesty's Government propose to reply that they cannot accept the proposal to repatriate all the Germans interned in this country in exchange for the British civilians interned in Germany since that would be to send back some 26 000 Germans in exchange for only 4000 British They have already proposed to the German Government that all civilians on both sides over 50 should be repatriated and also all those over 45 who are unfit for service in the field with the exception of certain persons to be retained for military reasons This proposal they will once more press upon the German Government, with the addition that persons so retained shall not exceed 20 on each side They further propose that the remaining British civilians and an equal number of German civilians shall be interned in a neutral country

Sir W BIRTS May we take it that the policy of reprisals is abandoned?—Lord ROBERT CECIL No sir the House must not arrive at any such conclusion The Government hold themselves perfectly free to retaliate if that proves to be the only way of obtaining justice for our prisoners

Mr BUTCHER What is the number of British civilian prisoners in Germany as compared with the number of interned Germans in this country?—Lord ROBERT CECIL There are about 4000 interned British civilians and 26 000 interned Germans

MONDAY JULY 17TH

Medical Arrangements in Mesopotamia

Sir HENRY CRAIK asked the Secretary for India whether he would take any steps to procure the prompt production of the report by Sir W Vincent General Bingley and Mr Lethbridge upon the medical arrangements for the Mesopotamia expedition and its presentation to Parliament—Mr CHAMBERLAIN replied I have asked the Viceroy to expedite the consideration of the report by the authorities in India and to transmit it to me with their [illegible]

and military representatives to medical evidence from private medical practitioners, in the interests both of the Army and the men concerned—Mr FORSTER replied The responsibility for the decisions taken by the recruiting medical boards of course rests with those boards but they have been instructed to give due consideration to medical evidence submitted by civilian medical practitioners regarding the men who have been called up for service It is not, I think the case that there has been any general failure to do this, but in view of statements which have been made attention has been called to the point

TUESDAY, JULY 18TH

The Wounded from the Battle of Jutland

Sir ARCHIBALD WILLIAMSON asked the Secretary to the Admiralty whether, after the battle of Jutland wounded men landed at a naval base in the North were sent by rail to hospitals at Haslar and Chatham, whether a number died on the long railway journey, whether he was aware that on the day in question there were at least 50 beds vacant and held at the disposal of the military authorities within a short distance of the same naval base, and whether he would endeavour to make arrangements with the War Office to obtain temporary use of their unoccupied beds at the nearest suitable hospitals should such an emergency recur—Mr MACNAMARA answered The condition of all the wounded landed after the battle of Jutland was carefully examined, and only those men were sent away by rail whose condition justified that procedure It is not the fact that any of them died, nor is it believed that any of them suffered injury The arrangements made by the Admiralty would have enabled them, had they thought it desirable, to have accommodated a larger number of patients in the neighbourhood of the landing places than were actually wounded There was therefore no emergency as my honourable friend seems to suppose The policy adopted was adopted deliberately by the Medical Department of the Admiralty partly in the interests of sound medical administration, partly for the convenience of men who preferred to be near their depots and their homes

Medical Arrangement in Mesopotamia

In the course of a statement dealing with the campaign in Mesopotamia Mr ASQUITH (Prime Minister) said With regard to the medical provision for the sick and wounded soldier Sir John Nixon the general who was then in command at the end of last November after the action at Ctesiphon in a report made to the Secretary of State for India from Basra stated that in his opinion the medical arrangements had been satisfactory

Appointments.

Successful applicants for vacancies Secretaries of Public Institutions and others possessing information suitable for this column are invited to forward to THE LANCET *Office directed to the Sub-Editor not later than 9 o'clock on the Thursday morning of each week such information for gratuitous publication*

ALDRIN B C R M B Ch B Edin has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Birmingham (North) District of the county of Warwick

ARKLE J WEPF F R C S Eng Surgeon to the Hôpital No 132, France

BRADY MARGARET M B B S Lond to take charge of the Baby Clinic and Infant Welfare Scheme under the Harrow Council

LAUDER HELEN L R C P L R C S Edin L F P S Glasg Medical Officer to the Hyde Education Committee

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index)

When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor

ALTON HANTS LORD MAYOR TREDEGAR CRIPPLES HOSPITAL.—Assistant Resident Medical Officer

BEDFORD COUNTY HOSPITAL.—House Surgeon unmarried Salary as arranged with board &c

BIRMINGHAM AND MIDLAND EYE HOSPITAL, Church street —Resident Surgeon Salary £200 per annum with board &c

BIRMINGHAM UNIVERSITY —Lecturer in Physiological Department Salary £200 per annum

BOLTON INFIRMARY AND DISPENSARY —Female Second House Surgeon Salary £200 per annum with board &c

BRIGHTON COUNTY BOROUGH ISOLATION HOSPITAL.—Resident Medical Officer Salary £250 per annum with board &c

BRISTOL ROYAL INFIRMARY —House Surgeons and House Physicians Salary at rate of £120 per annum with board &c Also House Surgeon to Throat Nose and Ear Department Also Female House Surgeon to Obstetric Department Salary at rate of £120 per annum with board &c

BUXTON DERBYSHIRE DEVONSHIRE HOSPITAL —Assistant House Physician Salary £100 per annum with board &c

CARDIFF KING EDWARD VII S HOSPITAL —House Surgeon for six months Salary at rate of £140 per annum with board &c

CHARING CROSS HOSPITAL, Agar street W C —Resident Medical Officer Salary £400 per annum

CROYDON COUNTY BOROUGH ISOLATION HOSPITAL.—Resident Medical Officer Salary at rate of £250 per annum with board &c

HELLINGLY EAST SUSSEX COUNTY ASYLUM —Locum Tenens Assistant Medical Officer for two months Salary 6 guineas a week with board &c

HUDDERSFIELD COUNTY BOROUGH —Assistant School Medical Officer Salary £300 per annum

HULL VICTORIA HOSPITAL FOR SICK CHILDREN —Female House Surgeon Salary £100 per annum with board &c

ITALIAN HOSPITAL, Queen square W C —Pathologist

LIVERPOOL DAVID LEWIS NORTHERN HOSPITAL.—House Surgeon for three or six months Salary at rate of £150 per annum with board &c

LONDON TEMPERANCE HOSPITAL Hampstead road N W —Assistant House Surgeon for six months Salary at rate of 120 guineas per annum

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN Park place Cheetham Hill road —Female House Surgeon Salary £120 per annum with board &c

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC Queen square Bloomsbury W C Junior House Physician Salary £100 per annum with board &c

NEWCASTLE UPON TYNE EDUCATION COMMITTEE —Assistant School Medical Officer Salary £250 per annum

QUEEN CHARLOTTE'S LYING IN HOSPITAL Marylebone road N W —District Resident Medical Officer for four months Salary at rate of £60 per annum with board &c

QUEEN'S HOSPITAL FOR CHILDREN Hackney road Bethnal Green E —Temporary Assistant Physician Also Temporary Assistant Surgeon Salary £25 per annum to cover travelling expenses Also Ophthalmic Surgeon for three to six months

READING ROYAL BERKSHIRE HOSPITAL.—House Physician for six months Salary £250 per annum with board &c

ST BARTHOLOMEW'S HOSPITAL —Temporary Assistant Administrator of Anæsthetics

ST LUKE'S INFIRMARY London —Junior Assistant Medical Superintendent of South Infirmary Paneras road N and Junior Assistant Medical Officer of Hounslow Salary at rate of £50 per annum with board &c Also Locum Tenens Salary at rate of 7 guineas per week with usual residential allowance

SHEFFIELD JESSOP HOSPITAL FOR WOMEN —Junior Female House Surgeon unmarried for Gynæcological and Maternity Departments Salary £100 per annum with board &c

SOUTHAMPTON COUNTY BOROUGH ISOLATION HOSPITAL —Resident Medical Officer of Health Salary £300 per annum with board &c

SUNDERLAND THE ROYAL INFIRMARY CHILDREN'S HOSPITAL.—Female Resident Medical Officer for six months Salary £100 per annum with board &c

TUNBRIDGE WELLS GENERAL HOSPITAL.—House Surgeon unmarried Salary £— per annum with board &c

VICTORIA HOSPITAL FOR CHILDREN Tite street Chelsea S W —House Surgeon for six months Salary at rate of £— per annum with board

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL —House Surgeon for six months Salary at rate of £— per annum with board &c

YORK CITY —Temporary Tuberculosis Officer Salary at rate of £ per annum

Births, Marriages, and Deaths

BIRTHS

BIGGE —On July 11th at Vellam House Southfields S W the wife of A C B Bigge M R C S L R C P of a daughter

BRUSHFIELD —On July 10th at Budleigh Halifax the wife of Brushfield M R C S of a son

FINCH —On July 16th at Ladywalk Rickmansworth Herts the wife of Captain G Finch R A M C (T) of a daughter

MARRIAGES

BENT—CHAPMAN —On July 15th at St John's Bognor Jersey Bent M R C S L R C P of Algrave Putney to Wilna eldest daughter of G H Chapman of Woodborough Lodge Putney S W

DOWSE—TODD —On June 24th at St Stephen's Edinburgh Captain J C Dowse R A M C to Mab daughter of B Hall and of Mrs Todd Kingstown

DEATHS

BELL —Accidentally drowned on July 11th while on active service abroad Edward Augustine Bell M B B S Lond Temporary Captain R A M C son of Mrs William Bell and the late William Bell M R C S J P of New Brighton

CASTLE —On July 15th in London Charles Wigram Marshall M R C S L R C P M O Kingston Jamaica aged 1[illegible] years

GABBETT —On July 11th Lieutenant Colonel Pultener Gabbett I M S aged 47

LEADAM —On July 14th at Inverness terrace W William Leadam M D, aged 79 years

MAW —On July 10th from wounds in action on 9th George Maw Captain R A M C

OWEN —On July 10th at East Hagbourne near Dilton C J Owen M R C S aged 62.

RIX —Killed in action on July 5th John Cecil Rix Captain L A attached Yorks Regiment age 140

SEABROOKE —About July 1st Captain Alec Seabrooke R A M C M B B C Cantab M R C S L R C P Lond aged 31

SILVA JONES —On Feb 16th at the London Hospital Frank Jones M B M R C S formerly of Southend-on-Sea aged

SMITH —On July 16th at a nursing home Arthur Greatorex S M B, C M aged 52.

WALKER —On July 19th at 33 Westgate Peterborough Thomas Walker J P M D F R C S V D in his 81st year after months illness Funeral at St John's Church Peterborough Monday the 24th inst at 2 30 p m

WILSON —On July 12th died from wounds received the preceding Walton Ronald Wilson B A Cantab M R C S L R C P lieutenant R A M C M O Seaforth Highlanders aged 2[illegible]

N B —A fee of 5s is charged for the Insertion of Notices of Births Marriages and Deaths

BOOKS, ETC, RECEIVED

ALLEN GEORGE AND UNWIN London
Elements of Folk Psychology By Professor W Wundt Translated by Edward Leroy Schaub Ph D Professor of Philosophy Iowa University Ill Price 15 net

BAILLIÈRE JOHN SONS AND DANIELSSON London
Animal Parasites of Man By H B Fantham M A Cantab Lond J W W Stephens M D Cantab D P H and F Theobald M A Cantab F E S Price net

BARRAS GEORGE AND CO Portsmouth street W C
Fighting Dirt A Hygiene Reader for Upper Standards in Continuation Schools With Introduction by S S Buckman M A Price 1s 6d

LEWIS H K London
Manual of Operative Surgery By J Bonde A M C M A M D F A C S Seventh edition revised and enlarged Price net
Practitioners Medical Dictionary By George M Gould A M M D Third edition revised and enlarged By J P Lamb M D C M D Price 17s net
Studies in Blood Pressure Physiological and Clinical By G Oliver M D Lond F R C P Edited by W D Halliburton M D F R S Third edition Price 7s 6d net
Mentally Defective Children For Schools Institutions and Others Meredith Young M D D P H D S Price net

LIPPINCOTT J B AND CO London
Learning to Fly By C Graham Wilmer Harry Harper Price

LONGMANS GREEN AND CO London
Nervous Complaints Their Cause and Cure By the late H Hayman Edited by Dr Dawtrey Drewitt Price net
Elements of Hygiene By Sir Edward A Sharpey Schafer M D F R S Third edition Price net
Anæsthesia By H Gray F R C S Edited by Frederick Hewitt M A D M P C A Anæsthesia revised by A J Jex Blake M A M D F R C S V Fellows Price net

MARITT BROS LTD London
Lawn Grammar and Key Price
Lawn Grammar for Beginners

MURRAY JOHN London
The Adventure of Death By Robert W Mackenna M A B Price net

ROCKEFELLER INSTITUTE New York
Studies from the Rockefeller Institute Vol XVII

Notes, Short Comments, and Answers to Correspondents.

DEADLY NIGHTSHADE

To the Editor of THE LANCET

SIR,—As the berries of the Atropa belladonna begin to ripen this month and form a very tempting fruit for children a little later on, the following description of the herb may be useful "Belladonna has a thick whitish root which is perennial, and sends forth strong, branched, annual, purple coloured stems, from three to five feet high The leaves are of unequal size, entire, oval, pointed, and stand in pairs on short footstalks The flowers are of a dark or purplish colour, large, pendant, bell shaped, furrowed, and the limb cut into five segments The whole plant is covered with fine hairs or down, the flowers appear in June or July, but the berries are not ripe till September, when they acquire a shining black colour" *Gerarde (Herbal, 1597)*, after recounting three cases of poisoning from eating the berries, waxeth wrath and writes "Banish, therefore, these pernicious plants out of your gardens, and all places neare to your houses, where children, or women with child do resort" The plant was formerly known as "Dwale," which Dr J A H Murray considers as probably from Scandinavian *dvol* = delay, sleep, and gives illustrative quotations from *Cursor Mundi* "Chaucer ("Reeve's Tale"), Piers Plowman, and others The most interesting notice of dwale, both from a historical and therapeutic point of view, is that of Thomas Lupton (1585), "Dwale makes one to sleep while he is cut or burnt by cauterising" I am, Sir, yours faithfully,

Dublin, July 15th, 1916 GEORGE FOY

T H T and Others—Benedict's reagent (S R Benedict, Journ of the Amer Med Assoc, 1911, lvii, 1193) consists of 173 grammes sod or pot citrate, with 200 grammes crystallised sod carbonate dissolved in 800 c c of boiling water After cooling and filtering, 17 3 grammes of copper sulphate dissolved in 100 c c of water are added, and the whole made up to 1000 c c The test for glucose is made as follows 10 drops of the solution to be tested are added to 5 c c of the reagent in a test tube, boiled for 1-2 minutes, and allowed to cool If glucose is present the solution will be filled with a red, yellow, or green precipitate

COMMUNICATIONS not noticed in our present issue will receive attention in our next

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c

MEDICO PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND, 11 Chandos-street Cavendish square W

THURSDAY —2 45 P M Annual General Meeting Papers:—Sir George Savage, M D: Mental Disabilities for War Service—Captain C McDowall, R A M C: Functional Gastric Disturbance in the Soldier

POST GRADUATE COLLEGE, West London Hospital, Hammersmith road, W

MONDAY —2 P M Medical and Surgical Clinics X Rays Mr Gray: Operations Mr B Harman: Diseases of the Eye Dr Simson: Diseases of Women

TUESDAY —2 P M, Medical and Surgical Clinics X Rays Mr Baldwin: Operations Dr Banks Davis: Diseases of the Throat, Nose, and Ear Dr Pernet: Diseases of the Skin

WEDNESDAY —10 A M, Dr Saunders: Diseases of Children Dr Banks Davis: Operations of the Throat, Nose and Ear 2 P M, Medical and Surgical Clinics X Rays Mr Pardoe: Operations Dr Simson: Diseases of Women

THURSDAY —2 P M Medical and Surgical Clinics X Rays Mr Gray: Operations Mr B Harman: Diseases of the Eye

FRIDAY —10 A M, Dr Simson: Gynæcological Operations 2 P M, Medical and Surgical Clinics X Rays Mr Baldwin: Operations Dr Banks Davis: Diseases of the Throat, Nose, and Ear Dr Pernet: Diseases of the Skin

SATURDAY —10 A M, Dr Saunders: Diseases of Children Dr Banks Davis: Operations of the Throat, Nose and Ear Mr B Harman: Eye Operations 2 P M, Medical and Surgical Clinics X Rays Mr Pardoe: Operations

NORTH EAST LONDON POST GRADUATE COLLEGE, Prince of Wales's General Hospital Tottenham N

MONDAY —Clinics:—10 30 A M, Surgical Out patients (Mr R Gillespie) 2 30 P M, Medical Out patients (Dr T R Whipham): Gynæcological Out patients (Dr Banister) 3 P M, Medical In patients (Dr R M Leslie)

TUESDAY —2 30 P M, Surgical Operations (Mr Carson) Clinics:—Medical Out patients (Dr A G Auld): Surgical Out patients (Mr Howell Evans): Nose Throat and Ear Out-patients (Mr G H Hayton) Radiography (Dr Metcalfe) 3 30 P M, Medical In patients (Dr A J Whiting)

WEDNESDAY —Clinics:—2 30 P M, Throat Operations (Mr G H Hayton) Children Out-patients (Dr T R Whipham): Eye Out patients (Mr R P Brooks): Skin Out patients (Dr H W Barber) 5 30 P M, Eye Operations (Mr R P Brooks)

THURSDAY —2 30 P M, Gynæcological Operations (Dr A R Giles) Clinics:—Medical Out patients (Dr A J Whiting): Surgical Out patients (Mr Carson): Radiography (Dr Metcalfe) 3 P M, Medical In patients (Dr R M Leslie)

FRIDAY —2 30 P M, Surgical Operations (Mr Howell Evans) Clinics:—Medical Out-patients (Dr A G Auld): Surgical Out patients (Mr R Gillespie): Eye Out patients (Mr R P Brooks)

THE THROAT HOSPITAL Golden square, W

MONDAY —5 15 P M, Special Demonstration of Selected Cases

THURSDAY —5 15 P M, Clinical Lecture

The following magazines journals, &c, have been received —Journal of Nervous and Mental Diseases, Midland Medical Journal Parasitology, Public Health Archives of Pediatrics Journal of the Royal Naval Medical Service Guy's Hospital Gazette, Annaes Paulistas de Medicina e Chirurgia Symons's Meteorological Magazine Canadian Journal of Medicine and Surgery Journal of Comparative Pathology and Therapeutics British Dental Journal Bulletin of the Office International d'Hygiene Publique Hospital Gazette, Canadian Practitioner and Review

EDITORIAL NOTICES

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff It is urgently necessary that attention should be given to this notice

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office

Lectures, original articles, and reports should be written on one side of the paper only, *and when accompanied by blocks it is requested that the name of the author, and if possible of the article, should be written on the blocks to facilitate identification*

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication

We cannot prescribe or recommend practitioners

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub Editor"

Letters relating to the publication, sale, and advertising departments of THE LANCET should be addressed "To the Manager"

We cannot undertake to return MSS not used

MANAGER'S NOTICES

THE INDEX AND TITLE-PAGE TO THE LANCET

January to June, 1916

IN view of the Government restrictions upon the supply of paper, and the shortage of *paper quite* apart from those restrictions, the Index and the Title page to the volume of THE LANCET which was completed with the issue of June 24th have been printed separately, and copies have been supplied gratis to those subscribers who have, up to July 20th, intimated to us their wish to receive them Other subscribers will be similarly supplied, so long as the stock remains unexhausted, on application to the Manager, THE LANCET Office, 423, Strand, London, W C Such application should please be sent in at once

Volumes and Cases

VOLUMES for the first half of the year 1916 will be ready shortly Bound in cloth, gilt lettered, price 16s, carriage extra

Cases for binding the half year's numbers are now ready Cloth, gilt lettered, price 2s, by post 2s 4d

To be obtained on application to the Manager, accompanied by remittance

TO SUBSCRIBERS

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423 Strand, London, W C, are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c, should be sent to the Agent to whom the subscription is paid, and not to THE LANCET Offices

Subscribers by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Friday mails to all parts of the world

Appointments.

Successful applicants for vacancies Secretaries of Public Institutions and others possessing information suitable for this column are invited to forward to THE LANCET *Office directed to the Sub-Editor not later than 9 o'clock on the Thursday morning of each week such information for gratuitous publication*

ALDREN B C R M B Ch B Edin has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Birmingham (North) District of the county of Warwick

ARKLE, J VERE F R C S Eng Surgeon to the Hôpital No 132, France

BRADY MARGARET M B B S Lond to take charge of the Baby Clinic and Infant Welfare Scheme under the Harrow Council

LAUDER, HELEN L R C P L R C S Edin L F P S Glasg Medical Officer to the Hyde Education Committee

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index)
When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor

ALTON HANTS LORD MAYOR TRELOAR CRIPPLES HOSPITAL—Assistant Resident Medical Officer

BEDFORD COUNTY HOSPITAL—House Surgeon unmarried Salary as arranged with board &c

BIRMINGHAM AND MIDLAND EYE HOSPITAL, Church street—Resident Surgeon Salary £200 per annum with board &c

BIRMINGHAM UNIVERSITY—Lecturer in Physiological Department Salary £200 per annum

BOLTON INFIRMARY AND DISPENSARY—Female Second House Surgeon Salary £200 per annum with board &c

BRIGHTON COUNTY BOROUGH ISOLATION HOSPITAL.—Resident Medical Officer Salary £250 per annum with board &c

BRISTOL ROYAL INFIRMARY—House Surgeons and House Physicians Salary at rate of £120 per annum with board &c Also House Surgeon to Throat Nose and Ear Department Also Female House Surgeon to Obstetric Department Salary at rate of £120 per annum with board &c

BUXTON DERBYSHIRE DEVONSHIRE HOSPITAL.—Assistant House Physician Salary £100 per annum with board &c

CARDIFF KING EDWARD VII S HOSPITAL—House Surgeon for six months Salary at rate of £140 per annum with board &c

CHARING CROSS HOSPITAL, Agar-street W C—Resident Medical Officer Salary £400 per annum

CROYDON COUNTY BOROUGH ISOLATION HOSPITAL.—Resident Medical Officer Salary at rate of £250 per annum with board &c

HELLINGLY EAST SUSSEX COUNTY ASYLUM—Locum Tenens Assistant Medical Officer for two months Salary 6 guineas a week with board &c

HUDDERSFIELD COUNTY BOROUGH—Assistant School Medical Officer Salary £300 per annum

HULL, VICTORIA HOSPITAL FOR SICK CHILDREN—Female House Surgeon Salary £100 per annum with board &c

ITALIAN HOSPITAL, Queen square W C—Pathologist.

LIVERPOOL, DAVID LEWIS NORTHERN HOSPITAL.—House Surgeon for three or six months Salary at rate of £150 per annum with board &c

LONDON TEMPERANCE HOSPITAL, Hampstead road N W—Assistant House Surgeon for six months Salary at rate of 120 guineas per annum

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN Park place Cheetham Hill road—Female House Surgeon Salary £120 per annum with board &c

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC Queen square Bloomsbury W C Junior House Physician Salary £100 per annum with board &c

NEWCASTLE UPON TYNE EDUCATION COMMITTEE—Assistant School Medical Officer Salary £300 per annum

QUEEN CHARLOTTE'S LYING IN HOSPITAL, Marylebone-road N W—District Residential Medical Officer for four months Salary at rate of £60 per annum with board &c

QUEEN'S HOSPITAL FOR CHILDREN Hackney road Bethnal Green E—Temporary Assistant Physician Also Temporary Assistant Surgeon Salary £25 per annum to cover travelling expenses Also Ophthalmic Surgeon for three to six months

READING ROYAL BERKSHIRE HOSPITAL.—House Physician for six months Salary £250 per annum with board &c

ST BARTHOLOMEW'S HOSPITAL.—*Temporary Assistant Administrator of Anæsthetics*

ST PANCRAS INFIRMARY London—Junior Assistant Medical Superintendent of South Infirmary Pancras road N W and Junior Assistant Medical Officer of House adjacent Salary at rate of £50 per annum with board &c Also Locum Tenens Salary at rate of 7 guineas per week with usual residential allowance

SHEFFIELD JESSOP HOSPITAL FOR WOMEN—Junior Female House Surgeon unmarried for Gynæcological and Maternity Department Salary £150 per annum with board &c

SOUTHAMPTON COUNTY BOROUGH ISOLATION HOSPITAL—Resident Medical Officer of Health Salary £350 per annum with board &c

SUNDERLAND THE ROYAL INFIRMARY CHILDREN HOSPITAL—Female Resident Medical Officer for six months Salary £100 per annum with board &c

TUNBRIDGE WELLS GENERAL HOSPITAL—House Surgeon unmarried Salary £50 per annum with board &c

VICTORIA HOSPITAL FOR CHILDREN Tite street Chelsea S W—House Surgeon for six months Salary at rate of £20 per annum with board &c

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL—House Surgeon, resident six months Salary at rate of £1 per annum with board &c

YORK CITY—Temporary Tuberculosis Officer Salary at rate of £150 per annum

Births, Marriages, and Deaths.

BIRTHS

BIGGE.—On July 11th at Nellam House Southfields S W the wife of A C B Bigge M R C S L R C P of a daughter

BRUSHFIELD.—On July 10th at Budleigh Halifax the wife of A Brushfield M R C S of a son

FINCH.—On July 15th at Ladywalk Rickmansworth Herts the wife of Captain G Finch R A M C (T) of a daughter

MARRIAGES

BENT—CHAPMAN.—On July 15 h at St Johns Bognor Percy Bent M R C S L R C P of Algrave Putney to Wilna, eldest daughter of G H Chapman of Woodborough Lodge Putney S W

DOWSE—TODD.—On June 24th at St Stephens Paddington W Captain J C Dowse R A M C to Mal daughter of B Hall T and of Mrs Todd Kingstown

DEATHS

BELL.—Accidentally drowned on July 11th while on active service abroad Edward Augustine Bell M B B S Lond Temporary Captain R A M C son of Mrs William Bell and the late William Bell M R C S J P of New Brighton

CASTLE.—On July 15th in London Charles Wigram Marshall Castle M R C S L R C P P M O Kingston Jamaica aged years

GABBETT.—On July 11th Lieutenant Colonel Pulsenet Cassan Gabbett I M S aged 47

LEADAM.—On July 14th at Inverness terrace W William Wa Leadam M D aged 79 years

MAW.—On July 10th from wounds in action on 9th George O Maw Captain R A M C

OWEN.—On July 10th at East Hagbourne near Didcot C J Bay Owen M R C S aged 62.

RIX.—Killed in action on July 5th John Cecil Rix Captain I A M C attached Yorks Regiment aged 40

SEABROOKE.—About July 1st Captain Alec Seabrooke R A M C B A M B B C Cantab M R C S L R C P Lond aged 31

SILVA JONES.—On Feb 16th at the London Hospital Frank S Jones M B M R C S formerly of Southend-on Sea, aged

SMITH.—On July 16th at a nursing home Arthur Greatorex Smith M B C M aged 52.

WALKER.—On July 19th at 33 Westgate Peterborough Thomas James Walker J P M D F R C S V D in his 81st year after two months illness Funeral at St Johns Church Peterborough on Monday the 24th inst at 2.30 p m

WILSON.—On July 12th died from wounds received in the preceding Walton Ronald Wilson B A Cantab M R C S., L R C P lieutenant R A M C M O Seaforth Highlanders aged 25

N B—A fee of 5s is charged for the insertion of Notices of Births Marriages and Deaths

BOOKS, ETC., RECEIVED

ALLEN GEORGE, AND UNWIN London
Elements of Folk Psychology By Professor W Wundt Translated by Edward Leroy Schaub Ph D Professor of Philosophy Iowa University Ill Price 15s net

BALE JOHN SONS AND DANIELSSON London
Animal Parasites of Man By H H Fantham M A Cantab D Sc Lond J W W Stephens M D Cantab D P H and F V Theobald M A Cantab F E S Price 4 net

HARRAP GEORGE G AND CO London and Edinburgh street W C
Fighting Dirt A Hygiene Leaflet for Upper Standards in Elementary Continuation Schools With Introduction by S S F M A Price 1s 6d

LEWIS H K., London
Manual of Operative Surgery By J F Binnie A I C M A F A C S Seventh edition revised and enlarged Price
Practitioners Medical Dictionary By George M Gould A M M D Third edition revised and enlarged By R F I S A B C L M D Price 17s net
Studies in Blood Pressure Physiological and Clinical By G Oliver M D Lond F R C P Edited by W D Halliburton M D F R S Third edition Price 7s 6d net
Mental Disease Detective Child For School Teachers and Others By Meredith Young M D D P H D S Price net

LAURIE T WERNER London
Learning to Fly By C Graham Williams Henry Harper F Price 2 6d

LONGMAN GREEN AND CO London New York and Bombay
Notes on the Care of the Consumptive By the Hon Lionel Walrond Edited by Dr Dawson Dowell Price 2 6d net
Food in Health and Disease By Sir Luis H A Mackenzie M D K C V O LL D F R S Ninth edition Price net
Anatomy By H Gray F R S Nine-teenth edition Edited by Henry Vandyke Carter M A D S M B C M Anatomy Medical By A J Jex Blake M A M D F R C S Third edition Edited by Francis M A F R C S Price net

MACLEHOSE AND SONS Glasgow
Italian Grammar and Key Tasks Series By A C Price Price net

MURRAY JOHN London
The Adventure of Death By Professor W Metchnikoff M A Price net

ROCKEFELLER INSTITUTE New York
Studies from the Rockefeller Institute for Medical Research Vol XIII

Notes, Short Comments, and Answers to Correspondents

DEADLY NIGHTSHADE

To the Editor of THE LANCET

SIR,—As the berries of the Atropa Belladonna begin to ripen this month and form a very tempting fruit for children a little over on the following description of the herb may be useful. Belladonna has a thick or thinish root which is perennial and sends forth strong branched annual purple-coloured stems from three to five feet high. The leaves are of unequal size, entire, oval pointed and small in pairs on short footstalks. The flowers are of a dark or purplish colour, large pendant bell shaped, turned out, and the limb cut into five segments. The whole plant is covered with fine hairs or down. The flowers appear in June or July but the berries are not ripe till September when they acquire a shining black colour. Gerarde (Herbal 1597) after recounting three cases of poisoning from eating the berries, wrath, mania and madness. Banish therefore these pernicious plants out of your gardens and all places near to your houses where children or women with child do resort. The plant was formerly known as "Dwale" which Dr. J. A. H. Murray considers as probably from Scandinavian dvala = delay, sleep, and gives illustrative quotations from Cary's Mem. (Chaucer), Beeves Tale, Piers Plowman, and others. The most interesting notice of dwale, both from a historical and therapeutic point of view, is that of Thomas Lupton (1583). Dwale makes one to sleep while he is cut or burnt by cauterizing. I am, Sir, yours faithfully,

Dublin, June 15th, 1916. GEORGE FOY.

J. H. F. or C. Cyr.—Benedict's reagent (S. R. Benedict, Journ. of the Amer. Med. Assoc. 1909, lvii, 1881) consists of 173 grammes sodium citrate, with 100 grammes crystallized sodium carbonate dissolved in 800 c.c. of boiling water. After cooling and filtering 17.3 grammes of copper sulphate dissolved in 100 c.c. of water are added, and the whole made up to 1000 c.c. The test for glucose is made as follows: 10 drops of the urine to be tested are added to 5 c.c. of the reagent in a test-tube, boiled for 1-2 minutes and allowed to cool. If glucose is present the solution will be turned into a red yellow or green precipitate.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the Ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.—Chandler Hall, Cavendish Square, W.

TUESDAY.—5 P.M. Annual General Meeting. Papers—Sir George Savage, M.D. Mental Disturbance in War Service. Captain C. Lloyd-Smith, R.A.M.C. Temporary Grave Disturbance in the Sane.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith Road, W.

MONDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Gray. Operations. Mr. B. Harman. Diseases of the Eye. Dr. Stewart. Diseases of Women.

TUESDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Ballance. Operations. Dr. Earle Davis. Diseases of the Throat, Nose and Ear. Dr. Perry. Diseases of the Skin.

WEDNESDAY.—9 A.M., Dr. Stewart. Diseases of Children. Dr. Earle Davis. Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Parkes. Operations. Dr. Stewart. Diseases of Women.

THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Gray. Operations. Mr. B. Harman. Diseases of the Eye.

FRIDAY.—9 A.M., Dr. Stewart. Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Ballance. Operations. Dr. Earle Davis. Diseases of the Throat, Nose, and Ear. Dr. Perry. Diseases of the Skin.

SATURDAY.—9 A.M., Dr. Stewart. Diseases of Children. Dr. Earle Davis. Operations of the Throat, Nose, and Ear. Mr. B. Harman. Eye Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Parkes. Operations.

NORTH EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics.—9 A.M., Surgical Outpatients (Mr. R. Gilliatt). 2.30 P.M., Medical Outpatients (Dr. T. R. Whipham). Gynæcological Outpatients (Dr. Bannister). 3 P.M., Medical Inpatients (Dr. R. M. Leslie).

TUESDAY.—2.30 P.M., Surgical Operations (Mr. Carson). Clinics—Medical Outpatients (Dr. A. G. Auld). Surgical Outpatients (Mr. Howell Evans). Nose, Throat, and Ear Outpatients (Mr. C. H. Ryder). Bacteriography (Dr. Mackenzie). 3.30 P.M., Medical Inpatients (Dr. A. J. Whiting).

WEDNESDAY.—Clinics.—2.30 P.M., Throat Operations (Mr. C. H. Harrold). Children Outpatients (Dr. T. R. Whipham). Eye Outpatients (Mr. R. P. Brooks). Skin Outpatients (Dr. H. W. Barber). 3.30 P.M., Eye Operations (Mr. R. P. Brooks).

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. B. Giles). Clinics—Medical Outpatients (Dr. A. J. Whiting). Surgical Outpatients (Mr. Carson). Bacteriography (Dr. Mackenzie). 3 P.M., Medical Inpatients (Dr. R. M. Leslie).

FRIDAY.—2.30 P.M., Surgical Operations (Mr. Howell Evans). Clinics—Medical Outpatients (Dr. A. G. Auld). Surgical Outpatients (Mr. R. Gilliatt). Eye Outpatients (Mr. R. P. Brooks).

THE THROAT HOSPITAL, Golden Square, W.

MONDAY.—5.30 P.M., Special Demonstration of Surgical Cases.

THURSDAY.—5.15 P.M., Clinical Lecture.

The following magazines, journals, &c., have been received:—Journal of Nervous and Mental Diseases; Mental Hygiene; Journal of Public Health; Archives of Pediatrics; Journal of the Royal Naval Medical Service; Guy's Hospital Gazette; Annales Pasteur; Revue de Médecine et Chirurgie; Sanitas; Hygiene; Medical Magazine; Canadian Journal of Medicine and Surgery; Journal of Comparative Pathology and Therapeutics; British Dental Journal; Bulletin of the Office International d'Hygiène Publique; Hospital Gazette; Canadian Practitioner and Review.

EDITORIAL NOTICES

It is most important that communications relating to the Editorial business of THE LANCET should be addressed exclusively "To THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, and when a number of pages are required, all the pages of the manuscript and the pages of the article should be written on the back of the preceding page.

Letters—whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET should be addressed "To the Manager."

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES

THE INDEX AND TITLE-PAGE TO THE LANCET
January to June, 1916

In view of the Government restrictions upon the supply of paper and the shortage of paper quite apart from these restrictions, the Index and the Title-page to the volume of THE LANCET which was completed with the issue of June 24th have been printed separately and copies have been supplied to those subscribers who have up to July 8th intimated to us their wish to receive them. Other subscribers will be similarly supplied, so long as the stock remains unexhausted, on application to the Manager, THE LANCET Office, 423, Strand, London, W.C. Such application should please be sent in at once.

Volumes and Cases.

Volumes for the first half of the year 1916 will be ready shortly. Bound in cloth gilt lettered, price 15s., carriage extra.

Cases for binding the half-year's numbers are now ready. Cloth gilt lettered, price 2s. 6d., post free.

To be obtained on application to the Manager, accompanied by remittance.

TO SUBSCRIBERS

WILL Subscribers please note that our large subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them. Subscriptions paid to London or to local newsagents (from none of whom have the Proprietors any connection whatever) do not reach THE LANCET Offices, and our repeated inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid and not to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of our Journals and an earlier delivery than the ordinary Agents are able to effect.

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Foreign mails to all parts of the world.

TO COLONIAL AND FOREIGN SUBSCRIBERS

Subscribers abroad are particularly requested to note the rates of subscriptions given on page 4

The Manager will be pleased to forward copies direct from the Offices to places abroad at the rates shown, whatever be the weight of any of the copies so supplied

NEWSPAPERS FOR NEUTRAL COUNTRIES

Newspapers are not at present being sent forward to neutral European countries unless posted direct from the office of publishers or newsagents who have obtained permission from the War Office for this purpose The Publisher of THE LANCET has obtained the required permission, and he will forward copies direct from the Office to any neutral country on receipt of instructions

METEOROLOGICAL READINGS

(Taken daily at 8.30 a.m. by Steward's Instruments)

THE LANCET Office July [illegible]

Date	Barometer reduced to Sea Level and 32° F	Direction of Wind	Rain fall	Solar Radiation in Vacuo	Maximum Temp Shade	Min Tem	Wet Bulb	Dry Bulb	Remarks
July 13	29.800	S W	0.03	82	65	53	58	60	Overcast
14	29.951	N W	0.25	115	65	54	54	5[illegible]	Overcast
15	30.150	N W	--	9[illegible]	63	51	53	5[illegible]	Cloudy
16	30.120	S W	--	8	66	55	59	59	Fair
17	30.006	N W	0.18	80	66	57	59	59	Overcast
18	30.105	N E	0.03	117	63	54	54	[illegible]	Overcast
19	30.035	N E		123	72	55	55	61	Fair

Communications, Letters, &c, have been received from—

A.—Mr J Vere Arkle France Anglo-French Drug Co Lond Messrs Arnold and Sons Lond Messrs Adlard and Son and West Newman Lond; Captain C H Attenborough R A.M C France Mr N Almond Kingston-on Thames Dr S K Alcock Stoke on Trent Messrs R Anderson and Co Lond Anglo-American Pharmaceutical Co Croydon Admiralty Medical Department Director General of Association of Registered Medical Women Lond Secretary of

B.—Mr W R Bristow Lond; Dr Helen Barnes Chippenham Dr J Brennan Mountshannon Messrs Burroughs Wellcome and Co Lond Messrs John Bale Sons and Danielsson Lond Messrs Butterworth and Co Lond Birmingham University Secretary of Brighton County Borough Clerk to the Messrs W H Bailey and Son Lond Dr F A Brooks Brighton Dr N S Bonard Lond Bristol Royal Infirmary Secretary of Mr William Barnes Yeovil British and Foreign Sailors Society Secretary of Board of Agriculture and Fisheries Lond

C.—Dr J F Corson Colinton Messrs E Cook and Co Lond; Crookes Collosols Lond Captain J H Cooke R A M C Colonel J Cantlie R A M C Lond Consulting Patent Agency Mr E M Corner Lond Messrs Carnrick and Co Lond

D.—Mrs A E Dawes Feckenham Messrs Duncan Flockhart and Co Edinburgh; Dr G H Dart Lond Messrs Dale Reynolds and Co Lond Devonshire Hospital Buxton Secretary of Denver Chemical Co Lond Dr Vincent Dickinson Lond Professor S Delepine Manchester David Lewis Northern Hospital Liverpool Secretary of

E.—Dr W A Evelyn York Dr G E Edmond on Millthorpe F W H Egypt Department of Public Health Director General of Cairo

F.—Mr J F Fraser Lond Dr H Morley Fletcher Lond Captain T Fenwick R A M C France Dr A O M Fehren Totgieters Rus Hon Mrs Franklin Lond; Messrs Fletcher Fletcher and Co Lond

G.—Glasgow University Registrar of Messrs K D Galbraith and Co Lond Dr S N Galbraith Newark on Trent Messrs Gordon and Gotch Lond Grant Medical College Bombay Principal of Mr Kenneth Gourlay Lond; Mr H Bellamy Gardner Lond; Mr J Gatt Cottingham Captain F Glynn R A M C General Medical Council Lond Acting Registrar of

H.—Dr A F Howell Lond Huddersfield J C Thomson Clerk to the Hertfordshire County Asylum St Albans Dr Jamieson B Hurry Reading Dr E B Hazleton Sheffield; Dr Francis Hare Lond Dr A C Houston Lond

I.—Indiana Public Library South Bend Librarian to the

J.—Johns Hopkins Press Baltimore Messrs W Judd Lond Jeyes Sanitary Compounds Co Lond Secretary of; Mr H Langley Jones Westcliff-on Sea Jessop Hospital for Women Sheffield Secretary of

K.—Messrs H S King and Co, Lond. Colonel W G King I M S Hatch End Captain C B Kidd R A.M C Aldershot; Kapok Industrial Co Lond King Edward VII Hospital Cardiff Secretary of Dr Anita Keilin Cambridge Mr W B Kendall Chepstow Mr R B King Taunton

L.—Liverpool and District Trained Midwives Association Secretary of Lieutenant F H Lloyd R A.M C France Messrs Lee and Martin Birmingham Messrs H K Lewis and Co Lond Mr D Lewis Great Yarmouth Captain J W Linnell R A M C R Hon Lord Mayor of London Messrs Longmans Green and Co Lond

M.—Mrs Mallard Ilkley Messrs Mather and Crowther Lond Mr W Martindale Lond Messrs C Mitchell and Co Lond Mr R More Glasgow Medical Society of London Librarian of Messrs Maconochie Bros Lond; Manchester Clerical &c Association Secretary of Major R. Tait Mckenzie R A.M C Medico-Legal Society Acting Hon Secretary of

N.—Miss Allson Neilans Lond. Newcastle upon Tyne Medical Officer of Health of

O.—Dr C O Gorman Tintagel

P.—Sir Robert Philip Edinburgh Dr John Larkin on Lond Dr R Lund n Belfast Lieutenant W J Lumin R A M C Punjab Office of Inspector-General of Civil Hospitals Lahore Superintendent of

Q.—Mr P Queen Lond

R.—Mrs A L Rees Winchmore Messrs F J Lelliand C Lond Royal Microscopical Society Lond Assistant Secretary of D W C Lyers Burnley Mr H Randle Smith Royal Society of Medicine Lond Secretary of Polanus

S.—Mr W G Spencer Lond Messrs J Smith Lond Dr George F Stedman Lond Mr G A Stephen, Cowes Mr A C Seery Croydon Messrs Spencer and Pond Lond; Messrs G K Sanders and Co Lond. Captain Hector Spencer R A M C France Sheerness Library Registrar of Messrs G Street and Co Lond. Colonel F M Sandwith Egypt Dr J A Scott, Dublin Messrs W H Smith and Son Lond F C Stechert Co New York; Dr D Severo Inhambane Southampton Corporation Clerk to the S G M Dr G A Stephens Swansea; Dr R H Shaw Yarmouth Dr H Sheasby Selly Oak

T.—Dr C H Thatcher Edinburgh Surgeon Major Wm Taylor Thompson Yates Laboratory Liverpool Librarian of Messrs W Thacker and Co Lond; Captain D C Taylor, R A M C Dr W E Tunner Lond Mr L L Tonin Fovyas Harold Mr A Toms Lond Captain C H Treuigoff R A M C Mrs B Teesdale-Smith Stafford Mr H M Traquair Edinburgh Tunbridge Wells General Hospital Secretary of; Messrs T Tyler and Co Lond

V.—Virginia Medical C[illegible] Librarian of Mr H W Vaspa Lincoln

W.—Mr R I Wason Br[illegible] Captain J D Wells R A M C France; Messrs Wills L[illegible] Dr F W Wood Mason Darlington Wolverhampton General Hospital Secretary of; G K Wells Parkstone Co[illegible] F W Ainley Wallace [illegible] Mr J N [illegible] West London Hospital F[illegible] Graduate College Dean Dr Jane Walker Lond; Wm A. White New Y[illegible] Miss M White M D Lond Dr F W Waldo Lond

Letters, each with enclosure are also acknowledged from—

A.—Mr S F Atkinson Loughborough Mr W L Allott Hoyland Nether A M I Ardath Tobacco Co Lond A M C A F C

B.—Messrs Baker Bros Lond Messrs Bullock and Co Lond; Dr B Worle B Lond Dr J M Bernstein Lond Surgeon J L Burford R N Lond Messrs A Bishop Lond Dr K Bremer Cradock B C Barnwood House Hospital Gloucester Secretary of

C.—Dr H R Carter Lond; Mr A K A Cassar Crowthorne Mr Colmer Yeovil County Asylum Prestwich Secretary of Dr P J Cremlin Cork Messrs Curling Wyman and Co Lond Mrs Cooke Greenock Church Army Lond Accountant to the Mr P W Clark Leigh Dr J L G Calverley Fakenham

D.—Mr R N Daniel Suttn Mr S F d'Arcelo Fort Douro Mr T Dixon Lond; Derbyshire Royal Infirmary Derby Secretary of

E.—Mr J Edward Manchester Dr H A Ellis Middlesbrough Mr W J Emmins Lond

F.—Mrs Finnigan Belfast Messrs J S Fry and Sons Bristol Dr R K Flint Bonthrang Messrs Frost Hawkins and Cartwright Nottingham Lieutenant-Colonel Fagan Poona Colonel F J B Captain G Finch I A M C Rheumatism [illegible]

G.—General Life Assurance Co Lond Mrs Geoghegan Lewisham Castle

H.—Dr H Hewer Glasgow Mr J H H [illegible] Dr [illegible] Mr I D Hunter Arbroath Dr W [illegible] Heart Parkgate Hume D [illegible] Secretary of Messrs Abel H [illegible] Manchester

I.—Imperial [illegible] Lond

J.—Dr C S Jaffe Lond Lieutenant Wm J [illegible] Glasgow Professor I Jameson Glasgow Jamsmith [illegible] Indian Medical Officer of J [illegible]

T.—Mr J Thom [illegible] Dr Isaac [illegible] Tunbridge Wells Clerk to the Trustees of [illegible]

V.—Mr J [illegible] Secretary of

W.—Dr A J [illegible] Dr H Hewer [illegible] Dr A H O Wood [illegible] Mr J J Walt[illegible] Mr A White [illegible]

Observations
ON
FIFTY LAPAROTOMIES
PERFORMED FOR GUNSHOT WOUNDS OF THE ABDOMEN

BY G H. STEVENSON, M.B, J J M SHAW, M D,
CAPTAINS R.A.M.C (S R);
AND
C MACKENZIE, M.D, F R C S,
CAPTAIN, R.A.M.C (T C)

IN the following article we give the results of 50 laparotomies on gunshot wounds of the abdomen performed at a casualty clearing station This clearing station is at present situated roughly about 5½ miles from our nearest front line trenches The town is frequently bombed, but up to the present has escaped shelling, except on one isolated occasion A building formerly used as a college for French boys has been adapted to meet the requirements of our patients

It will be seen from our list of cases that many of the patients were operated on within 5 or 6 hours of their being wounded, our record in this respect being 2½ hours Many others, however, did not reach us for 12 to 24 hours, and this may seem at a first glance to be a long period of time to cover a distance of 5½ miles It must, however, be remembered that many factors enter into the question of transit of wounded at the front Thus, during the winter, the communication trenches may be quite impassable for stretcher parties In such circumstances the wounded man is kept in the front line trench until darkness makes it possible for his conveyance over exposed ground Again, the roads leading to this town from the various dressing stations are often heavily shelled, making the transport of wounded impossible for several hours, and long detours have frequently to be made to escape a certain segment of road It will therefore be easily understood how the time in individual cases must vary enormously, according to the military circumstances prevailing at the moment, and the fact that cases have arrived here in the short periods mentioned must frequently have meant great devotion to duty on the part of the regimental medical officer and stretcher bearers As an example of what occurs the following case may be quoted An officer was badly wounded in the abdomen while superintending a working party behind our trenches In getting him to the first-aid post a bullet passed through one stretcher bearer killing him at once, and lodged in the already badly wounded officer's arm, fortunately doing him little additional harm

EXPECTANT TREATMENT

As this unit came out to France with the original Expeditionary Force in August, 1914, it might perhaps be of interest to make in the first place a few comments on the treatment of abdominal wounds in the early days of the war, when expectant methods were the routine Since then we have had considerable alteration in opinion regarding abdominal wounds and the development of the clearing station with its facilities for operation and nursing close to the firing line, has completely altered our outlook in such cases

Until the beginning of 1915 it was the custom that abdominal cases should be kept, as far as possible, near the spot where the patient received his wound. In practice this meant usually one or other portion of a field ambulance, although in one instance, so firmly had the lessons of the South African War taken hold, one officer hit in the abdomen refused to be removed from his dug out, and in fact died there in two days time This being the case, many of the most severe abdominal cases must of necessity have died before they reached the clearing station and any figures we give must be inclined towards optimism, rather than pessimism, for the expectant methods of treatment

In the pre-operation days at this clearing station we had what we called an abdominal ward where all cases suspected of intraperitoneal injury were placed to undergo the treatment of starvation and morphia We have from our admission and discharge books made an analysis of the figures for these cases with the following results —

Total cases	335
Transferred to the base	201
Deaths	134

This gives the low mortality of 40 per cent, which is undoubtedly fallacious in comparison with our operative statistics for the following reasons 1 Many of the abdominal cases died at field ambulances, and the chief cases we treated here were those not considered to be intraperitoneal when examined at the field ambulance 2 Evidence is entirely lacking as to the number of real intraperitoneal cases 3 We have no evidence of the future course of our (so-called) recoveries If this mortality of 40 per cent is more thoroughly investigated a much more valuable result is arrived at from the point of view of treatment The following is the analysis of the total deaths with reference to the period of time the man *was able to survive* his wound —

Total number of deaths	134
Died in 48 hours after admission	84
After 3 days	50

In the light of experience this means that 37 per cent of the patients who died here were able to survive their injuries for over three days, and then died of peritonitis caused by leakage of intestinal contents, which might have been prevented if operative measures had been adopted on admission It means in fact, that of these 50 cases many lives would have been saved by operative interference and probably a certain number of the 84 Of the 201 cases transferred to the base the majority were evacuated by us after two or three days, which proves, in our opinion, that these were not intraperitoneal

TYPES OF ABDOMINAL WOUNDS

The following is a very arbitrary classification of the clinical type of abdominal wounds —

Class 1 —Those which are without doubt intraperitoneal — This includes the large class of case with entrance wound in the anterior and exit wound in the posterior abdominal wall, or *vice versa*, which must of necessity be intraperitoneal and may injure any viscus or structure contained in the abdominal cavity

Class 2 —Those wounds apparently intraperitoneal (from their entrance and exit) which are really extraperitoneal —The commonest variety of this class is the "side to side" wound of the anterior abdominal wall In such cases a bullet often follows the planes of the abdominal muscles and does not enter the peritoneum Such wounds may cause intraperitoneal lesions without perforating the peritoneum (*vide* Case 28)

Class 3 —Those which are doubtful, occurring in the flanks — This is a very large class, nearly all the wounds of which require an examination under an anæsthetic to investigate their course Many wounds of this class injure the large bowel only and remain still extraperitoneal, the result being a fæcal fistula Others cause a fracture of the pelvic bones, and others, again, may cause intraperitoneal lesions without actually perforating the peritoneum, as in Class 2 Those which involve the pelvic bones may often produce marked shock

Class 4 —Those wounds which are extraperitoneal but have their entrance in regions situated at a distance from the abdominal cavity —These include wounds of the buttocks, chest, shoulder, &c, and are very apt to be overlooked In the region of the anus and fold of the nates it is especially easy to miss the entrance wound of a bullet, which in these regions often amounts to only a tiny slit in the skin

Class 5 —Those wounds involving the peritoneal cavity plus other important extraperitoneal structures—e g, small intestine plus spine, small intestine plus bladder, stomach plus lung, &c

CONDITION ON ADMISSION

The easy case from the diagnostic point of view is the severe one The prostrate patient, pallid, anxious, and cold, with a bluish tinge on the lips which fades into the general grey pallor of the face without the usual line of colour demarcation, the low petulant cry for drinks, the cry of pain on movement of the body or extension of the lower limbs, the site of the wound in abdomen, back flanks, or buttocks, the pulse rapid, small, and of very low tension, the abdomen hard and moving only slightly on respiration, with dullness all over or in the flanks, and a history of, or the presence of vomiting—these form a group of signs and symptoms by which a diagnosis can often be made at a glance, and for a patient of this sort operation at the

TO COLONIAL AND FOREIGN SUBSCRIBERS

Subscribers abroad are particularly requested to note the rates of subscriptions given on page 4

The Manager will be pleased to forward copies direct from the Offices to places abroad at the rates shown, whatever be the weight of any of the copies so supplied

NEWSPAPERS FOR NEUTRAL COUNTRIES

Newspapers are not at present being sent forward to neutral European countries unless posted direct from the office of publishers or newsagents who have obtained permission from the War Office for this purpose The Publisher of THE LANCET has obtained the required permission, and he will forward copies direct from the Office to any neutral country on receipt of instructions

METEOROLOGICAL READINGS

(Taken daily at 8.30 a.m by Steward's Instruments)

THE LANCET Office July 19th 1916

Date	Barometer reduced to Sea Level and 32° F	Direction of Wind	Rainfall	Solar Radio in Vacuo.	Maximum Temp Shade	Min Temp	Wet Bulb.	Dry Bulb	Remarks.
July 13	29 890	S W	0·03	82	65	53	58	60	Overcast
" 14	29·934	N W	0 26	115	65	54	54	56	Overcast
" 15	30 150	N W	--	96	63	51	53	58	Cloudy
" 16	30 120	S W		84	66	55	59	59	Raining
" 17	30 036	N W	0·18	80	66	57	59	59	Overcast
" 18	30 106	N E	0 03	117	63	54	54	56	Overcast
" 19	30·096	N E	..	123	72	55	55	61	Fine

Communications, Letters, &c, have been received from—

A.—Mr J Vere Arkle France Anglo-French Drug Co Lond Messrs Arnold and Sons, Lond. Messrs Adlard and Son, and West Newman Lond Captain C H Attenborough R A.M C France Mr N Almond Kingston on Thames Dr S K Alcock, Stoke on Trent, Messrs R Anderson and Co, Lond Anglo-American Pharmaceutical Co Croydon Admiralty Medical Department Director General of Association of Registered Medical Women Lond. Secretary of

B.—Mr W R Bristow Lond Dr Helen Barnes Chippenham Dr J Brennan Mountshannon Messrs Burroughs Wellcome and Co Lond Messrs John Bale, Sons and Danielsson Lond Messrs Butterworth and Co Lond. Birmingham University Secretary of Brighton County Borough Clerk to the Messrs. W H Bailey and Son Lond Dr F A. Brooks Brighton Dr N S Bonard Lond; Bristol Royal Infirmary Secretary of Mr William Barnes Yeovil British and Foreign Sailors Society Secretary of Board of Agriculture and Fisheries Lond

C.—Dr J F Corson Colinton Messrs E Cook and Co Lond Crookes Collosols Lond. Captain J R Cooke R A.M C Colonel J Cantlie R A.M C Lond Consulting Patent Agency Mr E M Corner Lond Messrs Carnrick and Co Lond.

D.—Mrs A E Dawes Feckenham Messrs Duncan Flockhart and Co Edinburgh Dr G H Dart Lond Messrs Dale Reynolds and Co Lond Devonshire Hospital Buxton Secretary of Denver Chemical Co. Lond Dr Vincent Dickinson Lond Professor S Delepine Manchester David Lewis Northern Hospital Liverpool Secretary of

E.—Dr W A Evelyn York Dr G N Edmondson Milnthorpe E W H Egypt Department of Public Health Director General of Cairo

F.—Mr J F Frazer Lond Dr H Morley Fletcher Lond. Captain T Fenwick R A.M C France Dr A O M Fehrsen Potgieters Rust Hon Mrs Franklin Lond Messrs Fletcher Fletcher and Co Lond

G.—Glasgow University Registrar of Messrs R D Galbraith and Co Lond Dr S N Galbraith Newark on Trent Messrs Gordon and Gotch Lond. Grant Medical College Bombay Principal of; Mr Kenneth Goadby Lond Mr H Bellamy Gardner Lond. Mr J Galt Cottingham Captain E Glynn R.A M C General Medical Council Lond. Acting Registrar of

H.—Dr A B Hewitt Lond Huddersfield Corporation Clerk to the Hertfordshire County Asylum St Albans Dr Jamieson B Hurry Reading Dr E B Hazleton Sheffield Dr Francis Hare, Lond Dr A C Houston Lond.

I.—Indiana Public Library South Bend Librarian to the

J.—Johns Hopkins Press Baltimore Messrs W Judd Lond Jeyes Sanitary Compounds Co Lond, Secretary of Mr H Langley Jones Westcliff-on Sea Jessop Hospital for Women Sheffield Secretary of

K.—Messrs H S King and Co Lond. Colonel W G King I M.S Hatch End Captain C B Kidd R A.M C Aldershot, Kapok Industrial Co Lond.; King Edward VII Hospital, Cardiff Secretary of Dr Anita Keilin, Cambridge Mr W B Kendall Chepstow Mr R. B King Taunton

L.—Liverpool and District Trained Midwives Association Secretary of Lieutenant F H Lloyd R A.M C France Messrs Lee and Martin Birmingham Messrs H K. Lewis and Co Lond.; Mr D Lewis Great Yarmouth Captain J W Linnell R A M C Rt Hon Lord Mayor of London Messrs Longmans Green, and Co Lond.

M.—Mrs Mallard, Ilkley Messrs Mather and Crowther Lond. Mr W Martindale Lond; Messrs. C Mitchell and Co, Lond. Mr R More Glasgow Medical Society of London Librarian of, Messrs Maconochie Bros Lond; Manchester Clerical &c Association Secretary of Major R. Tait Mckenzie, R A.M C Medico-Legal Society, Acting Hon. Secretary of

N.—Miss Alison Neilans Lond. Newcastle-upon Tyne Medical Officer of Health of

O.—Dr C O Gorman, Tintagel

P.—Sir Robert Philip Edinburgh Dr John Parkinson Lond Dr R Purdon Belfast Lieutenant W J Pontin R A.M C Punjab Office of Inspector-General of Civil Hospitals Lahore Superintendent of

Q.—Mr R Quesada Lond

R.—Mrs A. L. Ross Windermere Messrs E J Reid and Co Lond Royal Microscopical Society Lond. Assistant Secretary of Dr W C Rivers Barnsley Mr H Rundle Southsea Royal Society of Medicine Lond Secretary of Rolandus

S.—Mr W G Spencer Lond Messrs J Smith Lond Dr George F Stebbing Lond Mr G A Stephen Norwich Mr A C Sterry Croydon Messrs Spiers and Pond, Lond Messrs. G E Stechert and Co Lond. Captain Herbert Spencer R A.M C France; Sheffield University Registrar of Messrs G Street and Co Lond. Colonel F M Sandwith Egypt Dr J A Scott, Dublin Messrs W H Smith and Son Lond F C Stechert Co New York Dr D Severo Inhambane Southampton Corporation Clerk to the S G M Dr G A. Stephens Swansea Dr H H Shaw Yarmouth Dr H Sheasby Selly Oak

T.—Dr C H Thatcher, Edinburgh Surgeon Major Wm Taylor Thompson Yates Laboratory Liverpool Librarian of Messrs W Thacker and Co, Lond; Captain D C Taylor, R A.M C Dr W E Tanner Lond. Mr L L Thain Bwyas Harold Mr A. Toms Lond Captain C H Trenigoff R A.M C Mrs B Teesdale-Smith, Stafford Mr H M Traquair Edinburgh Tunbridge Wells General Hospital Secretary of; Messrs Thos Tyler and Co Lond

V.—Virginia Medical College, Librarian of Mr H W Vaughan, Lincoln

W.—Mr R L Wason Burbury Captain J D Wells, R.A.M C France; Messrs. Wills Lond, Dr E W Wood Mason, Leamington Wolverhampton General Hospital Secretary of Mr G R Wells Parkstone Captain E W Ainley Walker Oxford Mr J N Willoughby Lond. West London Hospital Post Graduate College Dean of Dr Jane Walker, Lond. Dr Wm A White New York Miss M White M D, Lond Dr F W Waldo Lond

Letters, each with enclosure, are also acknowledged from—

A.—Mr S E Atkinson Loughborough Mr W L Allott Hoyland Nether; A. M. E Ardath Tobacco Co, Lond A. M. C A F C

B.—Messrs Baker Bros Lond Messrs Bullock and Co Lond Dr B Worle B Lond; Dr J M Bernstein Lond.; Surgeon J L Barford R N Lond Messrs A Bishop Lond Dr K Bremer Cradock B C Barnwood House Hospital Gloucester Secretary of

C.—Dr H R Carter Lond Mr A K A. Cæsar Crowthorne Mr Colmer Yeovil County Asylum Prestwich Secretary of Dr P J Cremlin Cork Messrs Curling, Wyman and Co, Lond; Mrs Cooke Greenock Church Army Lond Accountant to the Mr F W Clark Leigh Dr J E G Calverley Folkestone

D.—Mr R N Daniel Sutton; Mr S F d'Azevedo Foz do Douro Mr T Dixon Lond Derbyshire Royal Infirmary Derby Secretary of

E.—Mr J Edwards Manchester Dr H A. Ellis Middlesbrough Mr W Edmunds, Lond

F.—Mrs Flanigan Belfast; Messrs J S Fry and Sons Bristol Dr R F Flood Bundoran; Messrs Freeth Rawson and Cartwright Nottingham; Lieutenant-Colonel Fagan Beaconsfield F J B Captain G Finch R.A M C Hickmansworth

G.—General Life Assurance Co Lond; Mrs Geoghegan, Rowlands Castle

H.—Dr H Hewer Gislingham Mr J H Hollyer Droitwich Mr P D Hunter Arlesey; Dr W N Heard Parkstone Hulme Dispensary Manchester Secretary of Messrs Abel Heywood Manchester

I.—International News Co Lond

J.—Dr C S Jaffe Lond. Lieutenant Wm Johnstone Catterick; Professor R Jardine Glasgow Junagadh State India Chief Medical Officer of J M H

K.—Kent Education Committee Maidstone Clerk to the

L.—Messrs Leslies Lond Messrs Lee and Nightingale Liverpool Captain W R Logan, R.A.M C. Colinton L J

M.—Dr F R Mallett, Bolton Manchester Northern Hospital, Secretary of Mr R. Martin, Banbridge; M K. Lieutenant Colonel MacLoughlin Hallywillan Messrs J Menzies and Co Glasgow

N.—Messrs F Newbery and Sons Lond; Nurses Association Lond.; Nobel's Explosives Co. Pembrey Secretary of Mr S K Nanjiani, Chota Udepur India Newcastle upon Tyne Corporation, Treasurer to the Northampton General Hospital Secretary of National Council for Combating Venereal Disease Secretary of; Norwich Public Library Librarian to the

P.—Dr H C Pattin Norwich, Portsmouth Lunatic Asylum Clerk to the P D D; Portsmouth Guardians Clerk to the Price's Patent Candle Co Lond Messrs W Porteous and Co Glasgow

R.—Dr M J Ryan Crumlin Royal Mineral Water Hospital Bath Registrar of

S.—Dr M Samy Salda; Smedley's Hydropathic Co Matlock Dr C L Smith Stratford on Avon Southampton Free Fye Hospital Secretary of Sunderland Royal Infirmary Secretary of Messrs Saward Baker and Co Lond Sanitary Inspectors Office Victoria B C Sheffield Corporation Clerk to the

T.—Mr J Thin, Edinburgh Dr Isaac Thompson Oakworth Three Counties Asylum Arlesey Clerk to the Tropical Diseases Bureau Director of

V.—Messrs J W Vickers and Co Lond Victoria Children's Hospital Hull Secretary of

W.—Dr A. J Whiting Lond Dr R Prosser White Wigan Dr W H O Woods Worthen Mr J J Waddelow Whitlingham Mr A. Wilson Lond

Observations
ON
FIFTY LAPAROTOMIES
PERFORMED FOR GUNSHOT WOUNDS OF THE ABDOMEN

BY G H. STEVENSON, M.B, J J M SHAW, M.D,
CAPTAINS R.A.M.C. (S.R)
AND
C MACKENZIE, M.D, F.R C S,
CAPTAIN, R.A M C (T C)

IN the following article we give the results of 50 laparotomies on gunshot wounds of the abdomen performed at a casualty clearing station This clearing station is at present situated roughly about 5½ miles from our nearest front line trenches The town is frequently bombed, but up to the present has escaped shelling, except on one isolated occasion. A building formerly used as a college for French boys has been adapted to meet the requirements of our patients

It will be seen from our list of cases that many of the patients were operated on within 5 or 6 hours of their being wounded, our record in this respect being 2½ hours Many others, however, did not reach us for 12 to 24 hours, and this may seem at a first glance to be a long period of time to cover a distance of 5½ miles It must, however, be remembered that many factors enter into the question of transit of wounded at the front Thus, during the winter, the communication trenches may be quite impassable for stretcher parties In such circumstances the wounded man is kept in the front line trench until darkness makes it possible for his conveyance over exposed ground. Again, the roads leading to this town from the various dressing stations are often heavily shelled, making the transport of wounded impossible for several hours, and long detours have frequently to be made to escape a certain segment of road It will therefore be easily understood how the time in individual cases must vary enormously, according to the military circumstances prevailing at the moment, and the fact that cases have arrived here in the short periods mentioned must frequently have meant great devotion to duty on the part of the regimental medical officer and stretcher bearers As an example of what occurs the following case may be quoted. An officer was badly wounded in the abdomen while superintending a working party behind our trenches In getting him to the first-aid post a bullet passed through one stretcher bearer killing him at once, and lodged in the already badly wounded officer s arm, fortunately doing him little additional harm

EXPECTANT TREATMENT

As this unit came out to France with the original Expeditionary Force in August, 1914, it might perhaps be of interest to make in the first place a few comments on the treatment of abdominal wounds in the early days of the war when expectant methods were the routine Since then we have had considerable alteration in opinion regarding abdominal wounds, and the development of the clearing station with its facilities for operation and nursing close to the firing line, has completely altered our outlook in such cases

Until the beginning of 1915 it was the custom that abdominal cases should be kept, as far as possible, near the spot where the patient received his wound. In practice this meant usually one or other portion of a field ambulance, although in one instance so firmly had the lessons of the South African War taken hold, one officer hit in the abdomen refused to be removed from his dug out, and in fact died there in two days time This being the case many of the most severe abdominal cases must of necessity have died before they reached the clearing station and any figures we give must be inclined towards optimism rather than pessimism, for the expectant methods of treatment

In the pre-operation days at this clearing station we had what we called an abdominal ward, where all cases suspected of intraperitoneal injury were placed to undergo the treatment of starvation and morphia We have from our admission and discharge books made an analysis of the figures for these cases with the following results —

Total cases	335
Transferred to the base	201
Deaths	134

This gives the low mortality of 40 per cent, which is undoubtedly fallacious in comparison with our operative statistics for the following reasons 1 Many of the abdominal cases died at field ambulances, and the chief cases we treated here were those not considered to be intraperitoneal when examined at the field ambulance 2 Evidence is entirely lacking as to the number of real intraperitoneal cases 3 We have no evidence of the future course of our (so-called) recoveries If this mortality of 40 per cent is more thoroughly investigated a much more valuable result is arrived at from the point of view of treatment The following is the analysis of the total deaths with reference to the period of time the man *was able to survive* his wound —

Total number of deaths	134
Died in 48 hours after admission	84
After 3 days	50

In the light of experience this means that 37 per cent of the patients who died here were able to survive their injuries for over three days, and then died of peritonitis caused by leakage of intestinal contents, which might have been prevented if operative measures had been adopted on admission It means in fact, that of these 50 cases many lives would have been saved by operative interference and probably a certain number of the 84 Of the 201 cases transferred to the base the majority were evacuated by us after two or three days, which proves, in our opinion, that these were not intraperitoneal

TYPES OF ABDOMINAL WOUNDS

The following is a very arbitrary classification of the clinical type of abdominal wounds —

Class 1 —Those which are without doubt intraperitoneal — This includes the large class of case with entrance wound in the anterior and exit wound in the posterior abdominal wall, or *vice versa*, which must of necessity be intraperitoneal and may injure any viscus or structure contained in the abdominal cavity

Class 2 —Those wounds apparently intraperitoneal (from their entrance and exit) which are really extraperitoneal —The commonest variety of this class is the "side to-side" wound of the anterior abdominal wall In such cases a bullet often follows the planes of the abdominal muscles and does not enter the peritoneum Such wounds may cause intraperitoneal lesions without perforating the peritoneum (*vide* Case 28)

Class 3 —Those which are doubtful, occurring in the flanks — This is a very large class, nearly all the wounds of which require an examination under an anæsthetic to investigate their course Many wounds of this class injure the large bowel only and remain still extraperitoneal, the result being a fæcal fistula Others cause a fracture of the pelvic bones and others, again, may cause intraperitoneal lesions without actually perforating the peritoneum, as in Class 2 Those which involve the pelvic bones may often produce marked shock

Class 4 —Those wounds which are extraperitoneal but have their entrance in regions situated at a distance from the abdominal cavity —These include wounds of the buttocks, chest, shoulder, &c, and are very apt to be overlooked In the region of the anus and fold of the nates it is especially easy to miss the entrance wound of a bullet, which in these regions often amounts to only a tiny slit in the skin

Class 5 —Those wounds involving the peritoneal cavity plus other important extraperitoneal structures—e g, small intestine plus spine, small intestine plus bladder, stomach plus lung, &c

CONDITION ON ADMISSION

The easy case from the diagnostic point of view is the severe one The prostrate patient pallid, anxious, and cold, with a bluish tinge on the lips which fades into the general grey pallor of the face without the usual line of colour demarcation, the low petulant cry for drinks, the cry of pain on movement of the body or extension of the lower limbs, the site of the wound in abdomen, back, flanks, or buttocks, the pulse rapid, small, and of very low tension, the abdomen hard and moving only slightly on respiration with dullness all over or in the flanks, and a history of, or the presence of vomiting—these form a group of signs and symptoms by which a diagnosis can often be made at a glance and for a patient of this sort operation at the

earliest possible moment is the only treatment Even though no pulse can be felt, an operation is not thereby contra indicated, as it gives the last possible chance to the patient. In a few cases the imminence of death is apparent from the mode of respiration, and these are beyond the surgeon's aid In such cases the abdomen may be quite soft

The more difficult cases are those in which the above conditions are absent or much modified On account of the fact that severe intraperitoneal mischief may be caused by a bullet which does not actually enter the peritoneal cavity, the track of the missile is the least important point in decision between operation and observation, except in those obviously slight cases where the muscular and fascial strata are not involved

If the patient has a fairly strong pulse below 95, is not vomiting, does not show signs of hæmorrhage, can hold his breath for over five seconds without severe pain, permits pressure on all parts of the abdomen except in the immediate vicinity of the wound, and can raise his head voluntarily from the pillow without much discomfort, such a patient is better observed for a few hours, with instructions to the nursing staff to give nothing by mouth, to take an hourly pulse, and to report at once should the patient vomit after being made warm and comfortable in bed In all cases of doubt it is advisable to anæsthetise, to excise the wound, and to explore with the fingers If doubt still remains an exploratory laparotomy should be performed

In a small number of cases the rigidity and tenderness may be localised to one side or one quadrant of the abdomen, and if the appearance and pulse indicate a serious condition laparotomy should be performed, with the expectation of finding the missile lodged in a solid viscus, usually the liver, or in the neighbourhood of the uncovered portion of the posterior wall of the large bowel, with hæmorrhage between the layers of the mesentery The urgency of such cases is not as great as in those in which infection and hæmorrhage affect the general peritoneal cavity, but operation is the path of greater safety

TECHNIQUE OF OPERATION

As regards the technique of operation here, this differs little from that in the similar operation of civil practice, but there are a few points which seem worthy of note

1 *Preparation of patient* —(*a*) As a general rule morphia and atropine are administered hypodermically before operation We do not usually give saline beforehand, relying on subcutaneous and intravenous injection during and after the operation It is important to remember that large doses of morphia may have been given before admission to a casualty clearing station Any dose given by the mouth may be, for all practical purposes, neglected (*b*) The "iodine" method is used for the preparation of the skin, except in those cases where the wounds involve a large area, when, after anæsthetisation, the patients are prepared with some carbolic preparation, usually lysol We invariably endeavour to excise completely both the entrance and exit wound, using, of course, a different set of instruments from those employed in the actual laparotomy In many doubtful cases it is advisable to explore the direction of the wound before proceeding to the operation, this is especially the case in wounds of the flanks It is impossible to do this thoroughly without an anæsthetic, as almost invariably the wounds of the different layers of the abdominal wall are not directly one above the other Thus, the wound in the abdominal muscles may be an inch or more distant from the wound in the skin The best exploratory instrument is undoubtedly the finger, as by gentle manipulation it is usually possible to trace the wound through the soft tissues with great ease We usually do this exploration with the naked finger, prior to the final washing up and donning of rubber gloves.

2 *Anæsthetic* —Warm ether is the anæsthetic we now use most frequently To give this we employ an improvised apparatus made out of a thermos flask and a pair of ordinary kitchen bellows which are worked by the anæsthetist's foot This method was first introduced in No 17 Casualty Clearing Station, and is excellent in every way We do not employ a second bottle for chloroform, as we do not think the complex apparatus gives any better results than merely dripping chloroform on the mask, if the patient does not readily go under with ether It is interesting to note that while still working with an open acetylene flame and chloroform those operating experienced most unpleasant immediate and remote symptoms, the immediate symptoms being coughing and vomiting, the remote being those of anæmia. This we afterwards discovered was due to the fact that "'phosgene' gas" was generated by the combination of the two gases burning Since the introduction of electric light to our casualty clearing station this difficulty has disappeared

3 *Time of operation* —Patients are operated on as quickly as possible, this works out in actual practice at about half an hour after admission In our opinion it is wrong to wait, no matter how bad the patient may appear, as so often in such cases hæmorrhage and infection are certainly progressing Many patients have been admitted here with abdomen distended and dull all over, in such cases, on opening the abdomen the blood spouts out as if the vena cava had been cut In one such case, in which subsequently recovery took place, the iliac vein was actually severed

4 *Incision* —In our experience it is usually better to open the abdomen either in or near the middle line This incision undoubtedly gives much freer access to the abdomen than any other, and in abdominal wounds one must be prepared for injury to almost any organ contained in the cavity In one case the wound was in the right lumbar region, and the only intraperitoneal injury found was a perforation of a loop of small intestine in the left iliac fossa, this being one example of many In such cases it is remarkable how seldom the missile is found and how little harm seems to result from its being left *in situ* (*vide* Case 33)

5 *Intraperitoneal technique* —The wounds in the gut are sewn up with fine thread in two layers, while stitching up continuous tension on the mesentery should be carefully avoided End to-end anastomosis is the usual method employed when resection is necessary, except in those cases where several feet of gut have to be removed, when lateral anastomosis is employed, as this is undoubtedly stronger, and in these cases there is considerable tension at the site of anastomosis Regarding the question of suture v resection, many cases are obviously only suited for the latter, and this, of course, is quicker than the suture of, say, 10 or 12 perforations It must, however, be remembered that the area of gut surrounding the perforations seems to suffer little harm and is perfectly viable in the great majority of cases This is more fully dealt with in the section of this article headed "Pathology" Suture in the transverse axis is preferable to the longitudinal, as the latter will undoubtedly decrease the calibre of the bowel, but too much stress need not be laid upon this, as the gut has great powers of expansion, and speed in stitching seems much more important The above applies only to lesions of the small intestine Those of the colon present rather a different picture, as in this case the tissues surrounding the injury are much more affected and show a distinct tendency towards secondary infection and sloughing In many such cases it is possible to excise a wedge shaped portion of gut and then suture, in others a colostomy would seem advisable rather than the risk of a subsequent perforation In many cases hæmorrhage is present to an enormous extent and the mere evacuation of blood often leads to a great improvement in the symptoms. (This was most marked in Case 30) In these cases the bleeding point is very seldom found, and the blood often wells through the wound in the parietal peritoneum This is especially the case in wounds having their entrance in the lumbar region posteriorly Wounds of the liver are usually packed, occasionally it is possible to suture them (*vide* Cases 12 and 28) Wounds in the spleen are similarly dealt with We have not met with many wounds of the kidney, in those cases where the kidney is badly pulped complete removal is, of course indicated, in those where the wound is slight the kidney may apparently be left without much danger, and urinary fistulæ usually heal up quite well The gut is carefully washed with saline while outside the abdominal wound, and all fæcal matera and doubtful lymph gently sponged off The abdominal cavity is also thoroughly washed out with saline or eusol and mopped dry Some cases seem to benefit from a quantity of saline being left in the peritoneal cavity In grossly infected cases we have also tried the injection of ether into the peritoneal cavity In our opinion the shock produced doe

not warrant a continuance of this procedure, although it has given good results in our hands in cases where the infection has been localised, as in appendix cases Large drainage tubes are inserted into the pelvis, and the flanks as well if the cavity is badly infected

6 *Closure of the wound* —The abdominal wound is stitched in layers, some silkworm gut sutures being inserted through all coverings except the peritoneum. This we think better than complete through and through suture, which we have also used.

7 *Miscellaneous* —During the operation continuous saline is given by means of Lane s bags, and frequently an intra venous infusion is given in addition We have also tried the citrate method of blood transfusion but no satisfactory data have yet been obtained. The operating table, although made specially for use in the field, is capable of being used with the patient in the Trendelenburg position

AFTER-TREATMENT AND SEQUELÆ

The first and most important symptoms to treat after operation are those of *collapse*, and it is necessary in the great majority of cases to have the foot of the bed raised for several hours When the pulse becomes stronger the head end is raised on two blocks for some time, and as the patient becomes more conscious the Fowler position is gradually assumed, in which he remains until all danger of sepsis has passed Small salines per rectum (usually with brandy) are given four hourly for the first 24 hours. There is no reason why small sips of water or milk and water should not be given by the mouth at once

Extreme restlessness is common for the first two or three days, and is often so bad as to call for repeated administration of morphia It usually increases if the patient is not going to get better, and is exceedingly distressing.

In cases where several hours have elapsed between the time of being wounded and the operation, *distension* is frequently present on admission and in such cases it is advisable to give pituitary extract hypodermically almost immediately after operation In other cases distension is also common and requires treatment by turpentine enemata, or pituitary extract followed in half an hour by glycerine enema, &c In our opinion there is no doubt that pituitary extract is the most valuable drug in the after treatment of abdominal cases It frequently acts like a charm, a motion of the bowels occurring in from half an hour to an hour after injection Other cases require a glycerine enema to give the desired result Many patients complain of intense pain following on the administration of pituitary extract, this may often be avoided by giving 1/6 gr of morphia with the injection, the morphia seems to have little or no effect on the pituitary extract We invariably use the extract with or without an enema as our first aperient, usually on the third day this depending on the individual patient In cases where the large bowel has been sutured, and it is undesirable to increase the bowel contents by aperients such as sulphate of magnesia, we have found a preparation of senna to answer very well This seems to act by softening the fæcal material without increasing the bulk

Bronchitis used to be common before the hot ether administration was introduced, and required the usual treatment We give a mixture of carbonate of ammonia and iodide of potassium if bronchitis does occur

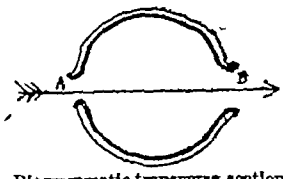
Vomiting and hiccough may require stomach lavage Many such cases respond to treatment with bicarbonate of soda or small doses of tincture of iodine

Among the later sequelæ we have observed are *pelvic abscess and suppuration of the original wound and incision* In grossly infected cases it would seem preferable to use catgut in place of threads in the suture of the deeper layers of the abdominal wound as thread, if infected tends to prolonged suppuration In cases where the wound is granulating well the skin epithelium may be stimulated by dressings of meat extract such as Lemco In Case 11 a large pelvic abscess was evacuated on the eighteenth day, after which the patient made a rapid recovery In another case what might be called 'traumatic insanity' was observed This case is referred to more fully later. The large pelvic drainage tube is usually removed at the end of 48 hours if no indications to the contrary are present In several cases where the patients have suffered greatly from hunger or thirst we have allowed 'chewing gum' with marked alleviation of distress

NOTES ON THE PATHOLOGY OF WOUNDS IN THE HOLLOW VISCERA

Generally speaking, the wounds seem to follow the rule that the exit is larger than the entrance Thus in Fig 1, if A be the entrance wound and B the exit, B will be considerably greater than A This is the case in several post-mortem specimens in our possession There is, however, a great variation in the appearance of the wounds in the different portions of the intestine, which seems worthy of note

FIG 1



Diagrammatic transverse section of intestine The exit wound B is considerably larger than the entrance wound A

Small intestine —In the small intestine the most marked feature of the wound is the everted mucous membrane giving the characteristic rosette appearance This is due to contraction of the muscular coats without a corresponding contraction of the mucous and submucous layers (See Fig 2)

The above is the commonest type of perforation seen, but in many of our cases the bowel, instead of being merely perforated, was completely torn across in several places This may occur without other lesion or combined with perforation, and is just as often found in bullet as in shell wounds The tear does not usually extend into the mesentery, but may do so for a fraction of an inch The appearance is as in Fig. 3

FIG 2

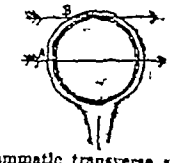
Diagrammatic longitudinal section of intestine showing the everted mucous membrane giving the characteristic rosette appearance.

FIG. 3

Diagram showing the less common condition of the intestine torn across

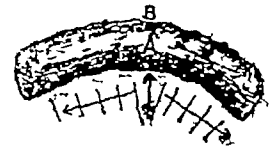
The explanation of the above is not quite clear, and the following points are mentioned as possible factors in its production (*a*) The bullet in traversing the abdomen sets up lateral waves strong enough to rupture the bowel, the so called "explosive" force The fact that in several cases the bullet has caused complete rupture of the bowel without entering the peritoneal cavity would seem to be in favour of this, as do also those cases where several complete splits occur in a few inches of gut (*b*) If we consider that the small bowel is lying in the abdomen anchored in arcs by the mesentery, it is possible that a bullet, hitting at or near the extreme convexity, may cause instead of a perforation an actual rupture, this effect being produced by the muscular action of the bowel plus the tension of the mesentery Thus in Figs 4 and 4A if a bullet strikes the bowel at A it

FIG 4



Diagrammatic transverse section of intestine to show the different possible directions of the force applied A bullet striking at A will cause perforation at B a tear

FIG 4A



The same showing the direction of pull of the mesentery

will cause a perforation, if, however, it strikes at or near B it will cause a complete tear This is exactly analogous to wounds elsewhere and has been seen especially frequently in wounds of the external aspect of the thigh This splitting does not seem to take place in the large intestine, so far as our observation goes. (*c*) Several observers state that the modern rifle bullet owing to the extreme weight of the base compared with the apex, may acquire a "tumbling" motion, and may therefore strike the bowel at one place with its sharp point and at another with its full length, causing complete rupture.

The paralytic distension of the bowel, so often seen, occurs most frequently in resection cases This is doubtless due to the fact that in such cases a complete rupture occurs in the continuity of the muscular coats, preventing or hindering the passage of peristalsis, and might be mentioned as a reason for suture rather than resection whenever possible In many cases it would seem that in addition to the injury to the bowel we have a condition of what might be called "bowel concussion," owing to the shock sustained by the sympathetic nervous system, and this may or may not be recoverable from Operative measures have been suggested as a remedy for these cases, but in our opinion when distension has occurred to any extent the patient is already in a hopeless condition

Microscopic appearances — Captain J W McNee, R A.M C (S R), has made for us some sections through the everted edge of the perforation Those show really remarkably little damage to the surrounding tissues, the epithelium being apparently undamaged almost at the extreme edge of the tear This is in accordance with post-mortem findings, when the portions sutured are always firmly healed

Large intestine —Wounds in the large intestine are frequently on the posterior and lateral aspects and are often extraperitoneal, their gravity depending on the ease with which the surrounding devitalised tissues become infected by fæcal material, causing virulent spreading cellulitis The actual wounds have no marked features, and eversion of the mucous membrane is not usually present The most marked feature observed by us in large intestinal injuries is the large amount of bruising produced, as evidenced by the collection of blood between the peritoneal and internal walls There is much more tendency to sloughing than in lesions of the small intestine

Stomach —There is nothing of special importance to note regarding wounds of the stomach, except that there seems a distinct tendency towards infiltration and sloughing of the surrounding tissues In one of our cases the bullet had nicked a large vessel near the edge of the greater curvature, causing profuse hæmatemesis

RESULTS

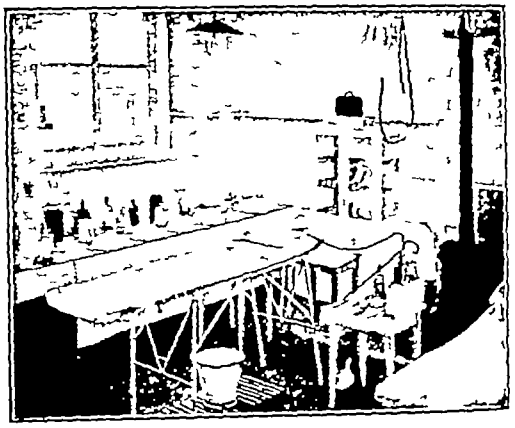
Our results give a recovery rate of 34 per cent This is low in comparison with a recent splendid series of cases published, and may be accounted for by the fact that we have only kept notes on two cases which showed no intraperitoneal injury and have not included the results of many exploratory laparotomies performed with negative results, which would have completely altered our figures It is probable however, that over a larger number of cases of undoubted peritoneal injury the rate will be somewhat higher, as our series undoubtedly contains an undue proportion of cases of very serious injury This is borne out in an article by Colonel Cuthbert Wallace, C M G , and the real recovery rate will probably be between 40 and 50 per cent In a recent article the writer states that it is not so usual in gunshot wounds of the bowel for the gut to be completely divided , in our experience this is a comparatively common occurrence

Regarding the question of whether a man will stand operation or not, we take the point of view that if intraperitoneal perforation of the gut is present he will almost certainly die if not operated on, and that it is right to give him a chance, even though the chance be 1 in 1000 Many of the cases were pulseless on admission , in others the pulse was only felt as a flicker, and yet two at least of this type of case recovered In the majority of cases it should be considered that we are dealing with young adult males whose physical resistance is at a very high pitch. The cases on which we have considered it undesirable to operate number, so far as we can estimate, only four, and in these cases all the patients died shortly after admission It must, however, be remembered that unfortunately, such a point of view is only possible at times when the casualty clearing stations are not unduly pressed In times of stress it will be obviously quite impossible to operate on every case which appears to have little chance of recovery, as this would mean time and labour spent which might be put to a better use in dealing with less seriously injured patients

A photograph of part of the operating theatre for abdominal, head and "clean" cases is reproduced with this article (see illustration) A smaller theatre and a different set of instruments, mackintosh sheets, and aprons are employed for any patient exhibiting signs of gas gangrene.

It would be difficult to estimate the improvement which has taken place in the equipment of a casualty clearing station from the operative and nursing points of view since the early days of the war, when a well selected but very

FIG 5



small outfit sufficed for amputations and cleansing operations but nothing more elaborate

NOTES ON SPECIAL CASES

CASE 7 —Practically no abdominal discomfort was experienced by this patient after operation and his wound and incision healed rapidly On the second day he stated that he had tasted poison in the sips of water given to him This became a fixed delusion which persisted for five days, and he expressed gratitude each day to the medical officer who did his dressing, and thereby withdrew the poison which his enemies gave him by the mouth

CASE 11 —This patient, an officer, was so ill on admission that it was open to question whether an operation should be performed at all He, however, made an excellent recovery from his primary operation, but afterwards developed a large pelvic abscess on the left side which was opened and drained on the eighteenth day It is interesting to note that before and after his being wounded he consumed quite a considerable quantity of neat rum The hole in the stomach was roughly the size of a two shilling piece and the abdominal cavity contained a large quantity of stomach contents

CASE 28 —The bullet in this case had not entered the peritoneal cavity, the track could be traced on the examination of the parietal peritoneum as a line of bruising So great, however, had the lateral force been that there was a crack in the anterior wall of the liver, almost severing a triangular portion of the organ, and there was also a rent in the gastro-colic omentum

CASE 29 —This patient was kept at a clearing station for two months During that period he did not show the slightest sign of partial obstruction or paresis of the bowel in spite of his serious operation On the fourth day a large quantity of streptococcal pus welled out of the wound in the left buttock On the eighth day he developed pneumonia of the right lower lobe and was critically ill for 13 days His temperature then fell to normal, where it remained for two days It then rose suddenly to 103° F and he complained of severe pain in the right buttock On the third day after this rise a swelling of the right buttock became evident and under an anæsthetic 11 ounces of pure streptococcal pus were evacuated The patient improved considerably, but the suppuration of the original wound of entrance continued A fortnight later this wound was explored under an anæsthetic and a few small fragments of the perforated iliac bone were removed An autogenous vaccine was then prepared and the temperature and general condition markedly improved When he left his temperature was steadily falling and he was eating, sleeping, and feeling well

CASE 30 —This is an excellent example of pure intraperitoneal hæmorrhage The patient on admission was extremely ill with a pulse of 120, which was scarcely palpable He was vomiting continuously, the abdomen was greatly distended and dull almost all over On opening the peritoneal cavity dark fluid blood spurted out as if a large vessel had been opened by the scalpel No bleeding point was found and no intestinal or other injury After operation the pulse dropped in 12 hours to 80 and the patient was transferred to the base on the sixth day for thorough

SYNOPSIS OF CASES

No	Description of wound and missile	Lesions found	Treatment.	A = result B = time between wound and operation	Cause of death.
1	Multiple shrapnel wounds of anterior abdominal wall	Abdomen full of blood and bowel contents Two large perforations of small intestine	Suture of perforation Abdominal lavage and pelvic drainage	A Died in 3 days B 5 hours	General peritonitis Necropsy
2	Entrance wound through right ilium Exit 2 in below and to left of umbilicus	1 Abdomen full of blood and fæcal material 2 Two perforations of cæcum 3 Several perforations of ileum	Suture of all perforations Large pelvic drainage-tube	A. Died in 3 days B 8 hours	General peritonitis Necropsy
3	Entrance 1 in below and to right of umbilicus. No exit Bullet.	Two small perforations of ileum	Suture of perforations Drainage-tube in right flank	A. Recovery B 2½ hours	—
4	Entrance 2 in to the right of and above umbilicus Bullet.	1 Abdomen full of blood. 2. Eight perforations of ileum and several perforations of mesentery 3 Two perforations of sigmoid flexure	Resection of 3½ ft of ileum (lateral anastomosis) Suture of sigmoid. Pelvic drainage	A. Recovery B 4½ hours	—
5	Entrance in left lumbar region. Exit wound in right iliac region Protrusion of bowel from exit wound Shell fragment	1 Gut completely severed at ileo-cæcal junction 2. Multiple perforations of ileum in 2 ft. immediately above cæcum	Resection of 2 ft. of ileum Suture of cæcum Anastomosis of ileum and sigmoid	A. Died in 2 hours B 3 hours	Hæmorrhage and shock No necropsy
6	Entrance left buttock Exit wound just below umbilicus Bullet	1 Three perforations of ileum 2. Perforation of bladder	Suture of perforation of intestine suprapubic cystotomy	A. Died in 48 hours. B 4 hours	Hæmorrhage and shock No necropsy
7	Entrance right buttock. Exit 3 in. below to left of umbilicus Shell fragment.	Eight perforations in small intestine One perforation in cæcum iliac vein torn large intraperitoneal hæmorrhage.	Resection and suture Lateral anastomosis	A. Recovery B 7½ hours	—
8	Entrance 1 in. above and to left of umbilicus Exit right hip Bullet	Six perforations in small intestine large retroperitoneal hæmorrhage.	Suture of perforations	A. Died in 36 hours B 3½ hours	Shock and hæmorrhage No necropsy
9	Entrance below and to right of umbilicus No exit. A loop of torn bowel protruding Bullet	Five perforations of jejunum 1 ft. of lower part of ileum blown to pieces perforation of bladder	Resection and suture	A Died in 4 hours B 4 hours	Operation performed only because extruded bowel was being strangulated Patient never rallied
10	Entrance 1 in. below twelfth rib in right mid-axillary line. No exit Bullet	Abdomen full of blood and fæcal material large tear in colon at hepatic flexure extensive retroperitoneal hæmorrhage	Suture of tear in colon	A. Died in 36 hours B 3½ hours	Necropsy Bullet found in twelfth dorsal vertebra with point actually in spinal canal Fracture of twelfth rib
11	Missile had passed through right upper arm into abdomen in right clavicular line at level of eighth rib and lay under skin in left hypochondriac region Shrapnel bullet.	Rupture of liver large rent in anterior wall of stomach tear in gastro-colic omentum with bleeding vessels	Suture of stomach Liver packed Bleeding vessels tied	A. Recovery after second operation for pelvic abscess B 5 hours	—
12	Transverse laceration in epigastric region Protrusion of portion of stomach and transverse colon Portion of high-explosive shell.	Laceration of liver a portion of the anterior border being almost completely severed.	Removal of loose portion of liver Catgut suture of liver Suture of wound Abdominal drainage.	A Recovery B 6 hours	—
13	Transverse laceration of abdominal wall 8 in long in epigastric region Protrusion of stomach transverse colon and large portion of great omentum Portion of high explosive shell.	Large portion of great omentum ingrained with mud and portions of stone This was gangrenous	Portion of lacerated omentum removed Edges of the wound pared Large drainage tube inserted	A. Recovery B 24 hours	—
14	Entrance below costal margin in the region of the gall bladder Exit right lumbar region just below twelfth rib Exit wound large and (?) injury to vertebræ Bullet	Abdomen full of blood Localised peritonitis round large stellate rupture of under surface of liver	Liver packed Abdomen washed out and drained	A. Died in 10 hours B 30 hours	Necropsy A very large retroperitoneal hæmorrhage. Large amount of blood clot in abdominal cavity Fracture of twelfth rib and vertebræ Patient had only one kidney (enormously enlarged)
15	Entrance between fifth and sixth ribs 1 in to right of sternum No exit. Bullet.	Ruptured liver one perforation transverse colon one in jejunum; one in cæcum	Suture of perforations Liver packed	A. Died in 6 hours B 4½ hours	No necropsy Death from shock and hæmorrhage
16	Entrance anterior abdominal wall on level with umbilicus in mid-clavicular line No exit. Shell fragment.	Twenty perforations small intestine Mesentery torn in two places	Suture of one perforation of ileum and one of pelvic colon Double resection and one end to end and one lateral anastomosis	A. Died in 12 hours. B 6 hours	No necropsy Shock and hæmorrhage
17	Entrance upper portion hypogastric region left side (large and lacerated) No exit Shell fragment	Numerous perforations and complete tears in small intestine Abdomen full of blood.	Resection of 4 ft of small intestine Lateral anastomosis	A. Died B 16 hours	Shock and hæmorrhage. No necropsy
18	Entrance over ninth rib in left posterior axillary line No exit. Bullet	Abdomen full of blood. Laceration spleen and liver; two tears in stomach and a long tear in transverse colon	Suture of tears in stomach and colon Liver and spleen packed	A. Died in 6 hours B 6½ hours	Necropsy Left pleural cavity full of blood Bullet lying just below external surface of right lobe of liver
19	Entrance right costal margin near mid Poupart plane Another wound (?) penetrated apex of right lung Shrapnel.	Tip of gall bladder cut off transverse colon bruised one perforation of jejunum	Gall bladder sutured also perforation in jejunum Bruised portion of colon invaginated Chest wound examined and found penetrating	A. Died in 24 hours after profuse hæmoptysis B 5½ hours.	Principally lung condition
20	Entrance left posterior lumbar region over eleventh rib; exit right hypochondriac region Bullet	Abdominal cavity full of blood Large stellate crack on under surface of liver bleeding freely	Liver packed	A. Died a few hours after operation B 13 hours	Chiefly hæmorrhage Bullet had traversed the body of the dorsal vertebra No necropsy

SYNOPSIS OF CASES—*(Continued)*

No	Description of wound and missile	Lesions found	Treatment	A = result. B = time between wound and operation.	Cause of death
21	Entrance right hip Bullet lay under the skin below left iliac crest	Blood in urine on passing catheter Abdominal cavity full of blood Small loop of intestine in pelvis blown to pieces Several other perforations No injury to bladder found	Resection end to-end anastomosis	A Died B 15 hours	Shock and hæmorrhage
22	Five wounds in left posterior lumbar region shell fragments	Five perforations small intestines Small portion of shell embedded in bowel wall	Suture of perforations	A Recovery B 18 hours	—
23	Entrance left lumbar region on level with umbilicus Exit low down right lumbar region Bullet	Four tears in transverse colon two in jejunum one in cæcum	Suture of perforations	A. Recovery B 5 hours	—
24	Entrance inner side of left anterior superior spine Exit left buttock Bullet	Large intraperitoneal hæmorrhage No intestinal injury found	Pelvic drainage	A. Recovery B 6 hours	—
25	Particulars of wound not kept Bullet	Multiple complete tears of small intestine Several isolated perforations	Resection of 18 in small intestine Suture of perforations	A Recovery but had a fæcal fistula. B ?	—
26	Ragged tear in right lumbar region Shell fragment.	Abdomen full of blood Extensive bruising of colon at hepatic flexure Spouting artery in mesentery	Spouting vessel tied Pelvic drainage	A Recovery but had a fæcal fistula. B 6 hours	—
27	Ragged wound above right iliac crest Partial paralysis right leg Bullet (ricochet)	Some hæmorrhage in abdominal cavity Large retroperitoneal hæmorrhage and extensive bruising of cæcum	Abdomen washed out and stitched up	A. Died in 12 days B 5½ hours	Necropsy: Two large rents in posterior aspect of ascending colon Extensive cellulitis septic broncho-pneumonia both lungs Several lumbar nerves cut
28	Entrance right epigastric region Exit left hypochondriac region Bullet	Split 2½ in long anterior border of liver Rent in gastro-colic omentum Several vessels spouting Bullet had not entered peritoneal cavity	Liver stitched Bleeding vessels ligatured	A Recovery B 4½ hours	—
29	Entrance left buttock Shrapnel bullet lying under skin above right anterior to superior spine Shrapnel bullet	19 perforations of small intestine Generalised peritonitis Large quantity of blood in abdomen Retroperitoneal hæmatoma.	Double resection and end to-end anastomosis	A. To base Suppuration of entrance wound persisting B 4½ hours.	—
30	Entrance right posterior iliac region No exit Shrapnel bullet.	Peritoneum full of dark blood No injury to hollow viscera found	Pelvic drainage	A. Recovery B 3 hours	—
31	Entrance left buttock Exit right hypogastric region Knuckle of bowel protruding Bullet	Abdomen full of blood Multiple perforations and ruptures of small intestines	Double resection and suture	A. Died in 2 hours B 7½ hours	Shock and hæmorrhage No necropsy
32	Entrance right buttock. No exit Large swelling in region of right inguinal canal Shell fragment	Large fragment of shell in congenital hernia sac six large perforations in ileum near junction with cæcum laceration of cæcum and appendix	Resection end to end anastomosis Appendix removed Cæcum sutured	A. Died in 24 hours B 6 hours	Shock and hæmorrhage Iliac bone badly shattered
33	Entrance 2 in below ninth costal cartilage Bullet	Small perforation near edge of greater curvature of stomach; Large vessel spouting	Purse-string suture round stomach perforation Bullet afterwards removed from liver	A. Recovery B 14 hours	—
34	Entrance high up in right hypochondrium Bullet lying under skin on right side between tenth and eleventh ribs behind	Small quantity of blood in peritoneum Bullet passed through liver	Drainage of peritoneum.	A. Recovery B 3 hours	—
35	Entrance anterior abdominal wall right hypochondrium Exit posterior abdominal wall close to left side third lumbar vertebra Revolver bullet	Two tears in transverse colon two perforations of duodenum	Suture of all perforations Pelvic drainage	A Died in 3 days B 2 hours	Necropsy: Localised peritonitis Large retroperitoneal hæmorrhage
36	Entrance right umbilical region Exit right lumbar region Bullet	Abdomen contained blood and intestinal contents two complete ruptures of small intestine	Resection of 1 foot of intestine end to end anastomosis	A Died in 3 days B 10 hours	General peritonitis Necropsy
37	Entrance right umbilical region No exit Shell fragment	Small knuckle of intestine protruding 14 perforations and ruptures of ileum	Resection of 4 ft of bowel end to end anastomosis	A Died in 1½ hours B 4½ hours	Shock and hæmorrhage No necropsy
38	Entrance McBurney's point Exit right buttock Bullet	Severe bruising of cæcum Large retroperitoneal hæmorrhage No intestinal perforations found	Drainage of right iliac fossa	A Died in 48 hours B 5 hours.	General peritonitis Portion of cæcum had sloughed causing fæcal fistula. Small ulcer in upper part of ileum
39	Entrance left buttock Exit left iliac region Shell fragment	Two large tears in sigmoid four rents small intestine fracture of pelvis	Resection of 2 feet of small intestine Suture of sigmoid Pelvic drainage	A Died in 4 days suddenly B 10 hours	Necropsy: Localised peritonitis Heart dilated and flabby Extensive mitral disease
40	Entrance posterior abdominal wall over twelfth rib on left side No exit Shell fragment	Two large rents in descending colon one rent in jejunum large shell fragment lying on the aorta behind peritoneum	Suture of jejunum Colostomy Pelvic drainage	A. Died in 5 days B 11 hours	General peritonitis Necropsy
41	Entrance anterior abdominal wall left lumbar region Missile lying below twelfth rib left side Also wound of chest ? penetrating Shell fragments	Protrusion of knuckle of bowel from entrance wound Ileum torn in two places	Suture of perforations Pelvic and flank drainage Missile excised	A Died in 3 days B 4 hours	Necropsy Slight localised peritonitis left iliac fossa Portion of shell in right lung Hæmothorax

SYNOPSIS OF CASES—*(Continued)*

Description of wound and missile	Lesions found.	Treatment.	A = result. B = time between wound and operation.	Cause of death
Entrance posterior abdominal wall, left lumbar region Exit anterior abdominal wall left lumbar region. Also bullet wound of right arm.	Abdomen full of blood two large tears in sigmoid severe bruising round tears. Solid fæcal matter lying free in pelvis.	V-shaped resection of affected portion of sigmoid.	A. Recovery B 5 hours.	—
Entrance posterior abdominal wall, right lumbar region. Shell fragment.	Missile had penetrated back of hepatic flexure. Two perforations of ileum in a loop lying in left iliac fossa.	Perforation sutured Left iliac fossa drained.	A. Died in 8 days having developed fæcal fistula and severe diarrhœa. B 23 hours.	Necropsy Slight adhesive peritonitis Right lobar pneumonia.
Entrance costal margin, left epigastric area. Exit right loin. Bullet (shrapnel)	Rupture of liver Wound through right kidney Abdomen full of red blood.	Liver and kidney packed with gauze.	A. Died in 3 days, after removal of packing B 4 hours	Secondary hæmorrhage. Necropsy Abdomen contained large blood clots Complete transverse splitting of right kidney
Entrance right posterior lumbar region. Bullet lying under skin in left umbilical area. Shrapnel.	One perforation of jejunum, three of ileum and three in cæcum, and two in transverse colon.	All perforations sutured Shrapnel bullet removed	A. Died in 30 hours B 5½ hours	Necropsy General peritonitis Large retroperitoneal hæmorrhage. Old adherent pericarditis
Entrance right buttock. Exit left umbilical region. Bullet	Abdomen full of blood 11 perforations and tears of ileum one perforation of cæcum. Cæcum badly bruised. Severe bruising of transverse colon.	Resection of portion of small intestine. Suture of cæcum Pelvic drainage.	A. Died in 2½ hours. B. 5 hours.	Necropsy Large portion of anterior wall of transverse colon had sloughed. Abdomen full of fæcal material.
Entrance left buttock Exit left iliac region. Shell fragment.	Large intraperitoneal hæmorrhage. Comminuted fracture of left iliac bone.	Drainage.	A. Died in 12 hours. B [illegible]	Shock and hæmorrhage No necropsy
Entrance posterior abdominal wall left lumbar region. No exit Shell fragment. Multiple wounds of face, arms, and legs	Protrusion of small piece of omentum from wound. No intestinal injury Hæmatoma in mesentery Omentum torn and bleeding	Vessels in omentum ligatured.	A. Died in 36 hours. B 5½ hours	No necropsy Shock and hæmorrhage.
Entrance posterior dorsal region, over tenth rib No exit. Shell fragment.	Abdomen full of blood. Missile had passed through liver and was lying in anterior abdominal wall.	Liver packed with gauze.	A. Died in 12 hours B 6½ hours.	No necropsy Hæmorrhage
Entrance wound in umbilical area. No exit. Shell fragment	Abdomen full of blood and fæcal matter Large tear in transverse colon and cæcum two tears in small intestine. Extensive bruising of cæcum.	Suture of transverse colon and small intestine Artificial anus at cæcum.	A. Died in 3½ hours. B. 5½ hours	Shock and hæmorrhage. No necropsy

X ray examination He was then exceedingly well A subsequent report from the base stated that the patient made an excellent recovery and that no further X ray examination was considered necessary

CASE 33 —This patient was admitted with a small wound in the epigastric area which did not seem to perforate In a few hours however he vomited a large quantity of bright red blood and became so ill that immediate operation was decided on On opening the abdominal cavity nothing at first was found until a thorough examination of the anterior wall of the stomach revealed a tiny puncture near the edge of the greater curvature which just admitted the point of a probe A large vessel was partially severed and was pumping its contents into the stomach No bullet could be found The patient did perfectly well the bullet was afterwards located by X rays in the liver and removed by a surgeon at the base

The following analysis of the foregoing table has been made in order to emphasise certain points of interest in the series of operations —

Site of the Lesion in the 17 Cases which Recovered

(a) *Wounds of the small intestine alone*—4 cases (3 22, 25 and 29)

Treatment adopted —Suture alone in 2 cases (3 and 22) Resection and suture in 1 case (25) Double resection in 1 case (29)

(b) *Wounds of the small and large intestine*—3 cases (4 7, and 23)

Treatment —Resection of small intestine suture of large intestine (Case 4) Resection and suture (Case 7) Suture alone (Case 23)

(c) *Wounds of the large intestine alone*—1 case (42)

Treatment —V shaped resection of the sigmoid.

(d) *Wounds of the stomach and liver*—2 cases (11 and 33)

Treatment —Suture of perforation in stomach liver tear packed (Case 11) Suture of perforation in stomach (Case 33)

(e) *Wounds of the liver*—3 cases (12, 23 and 34)

Treatment —Pent in liver sutured in 2 cases (12 and 23 Drainage of peritoneum only (Case 34)

(f) *Intraperitoneal hæmorrhage without injury to a hollow viscus*—3 cases (24 25 and 30)

Treatment —Bleeding point in mesentery ligated (Case 25) Drainage of peritoneum bleeding point not located (Cases 24 and 30)

(g) *Wound and prolapse of omentum*—1 case (15)

Treatment —Excision of the prolapsed portion and wound sutured.

Summary

Cases that recovered	17
Parts involved	
Small intestine alone	4
Small and large intestine	3
Large intestine alone	1
Stomach and liver	2
Liver	3
Hæmorrhage without perforation of intestine	3
Wound of omentum ..	1
Total ..	17

A fæcal fistula occurred in 3 cases (1) Small gut (Case 25) recovered, (2) colon (Case 26) recovered (3) colon (Case 43) died Sloughing of the colon in 1 case (46), died Secondary operation for localised abscess 1 case (11) recovery Perforation of the bladder with wounds of the intestine 2 cases (6 and 9), both fatal.

Site of the Lesions of the 33 Fatal Cases

1. *Wounds of the small gut alone*—10 cases In 6 of these extensive intraperitoneal hæmorrhage was present

2. *Wounds of the small and large intestine*—9 cases as follows Small gut and cæcum, 2 small gut cæcum and transverse colon 3, small gut and sigmoid 1, small gut and transverse colon 1 small gut and descending colon, 1, and small gut and hepatic flexure 1. In 6 free hæmorrhages had occurred

3 *Wounds of the large intestine alone*—3 cases hepatic flexure ascending colon and cæcum.

4 *Wounds of the bladder and small intestine*—2 cases

5 *Wounds of the liver alone*—3 cases

6. *Wounds of the liver associated with other viscera*—4 cases Liver plus small plus large intestine 1, liver, spleen stomach and transverse colon 1 liver, transverse colon, and jejunum 1, liver and kidney 1

One case of injury to the omentum and one of fracture of the pelvis with intraperitoneal hæmorrhage bring the total of fatal cases to 33.

The cause of death in the 33 fatal cases was found to be as follows 1 General peritonitis—10 cases The average time of survival after operation was 34 days 2. Hæmorrhage and shock—19 cases Time of survival varied from 2 to 45 hours after the operation 3 Lung conditions—2 cases

(a) hæmoptysis, and (b) broncho-pneumonia and cellulitis 4 Secondary hæmorrhage (kidney)—1 case 5 Sloughing of the gut—1 case

In conclusion, we wish to express our indebtedness to Surgeon General Sir Anthony Bowlby, K.C M G , K C V O , A M S , consulting surgeon, for valuable help and encouragement, and to Lieutenant-Colonel J W Leake, C M G , R A M C , for permission to publish this article

ON THE ADVANTAGE OF USING A BROTH CONTAINING TRYPSIN IN MAKING BLOOD CULTURES

BY S R DOUGLAS, M R C S , L R C P LOND ,
CAPTAIN I M S (RETIRED); FIRST ASSISTANT BACTERIOLOGICAL DEPARTMENT, MEDICAL RESEARCH COMMITTEE, NATIONAL INSURANCE ACT

AND

L COLEBROOK, M B , B S LOND ,
CAPTAIN R.A.M C (T) ASSISTANT, BACTERIOLOGICAL DEPARTMENT, MEDICAL RESEARCH COMMITTEE

(From the Inoculation Department, St Mary's Hospital, W)

IT is now generally recognised that at times very important information may be gained by making cultures from a sample of blood drawn from a vein, for by this simple procedure it is often possible to make a definite diagnosis, especially in cases of obscure fevers There is little doubt that this method of investigation would be much more frequently adopted if positive results could be obtained in a larger percentage of cases, and if the presence or absence of growth could be more rapidly determined Even if living microbes are present in the sample of blood obtained from the vein it is quite possible that no growth will be detected in the cultures made from it, or the growth will be so delayed that for several days it will be unrecognised either by direct examination or by subculture

The following factors are certainly of importance as causes of some of the failure and much of the delay

1 When blood is added to broth clotting soon takes place and the fibrin meshwork formed catches up any microbes—as has been demonstrated by Jousset—together with the cellular elements of the blood The fibrin contracting, a firm mass is formed which usually sinks to the bottom of the tube If, as is generally the case, only very few micro-organisms are present it is more than probable that, even if these organisms multiply in the clot, growth would appear in the surrounding broth only after a considerable interval.

2 Wright's recent researches have shown that the leucocytes are capable of wandering through the fibrin meshwork forming the clot and are frequently attracted towards any microbes present, which they attack and often kill, so that there is present in such clots a condition favourable to killing off any microbes that may be present

3 Again it is very generally recognised that the blood fluids are antibacterial, thus, in respect of certain organisms the serum has very considerable bactericidal properties, and almost every organism is affected by the opsonic properties of the serum and rendered by it more easily taken up by the leucocytes These properties of the blood fluids may play an important rôle in preventing the rapid growth of organisms in blood cultures

4 Another property which belongs to the blood fluids is that of *inhibiting* the growth of microbes, although they may not be actually bactericidal. This property largely depends on the concentration of the serum and differs markedly in individuals, being often very marked in the infected

From time to time recommendations have been made to improve the technique of blood cultures, it having been stated that by this or that procedure a larger percentage of successes or quicker results were obtained When these methods have proved successful it is always found that the three factors mentioned above—namely, the formation of a firm clot, the bactericidal action of the blood, or the inhibitory action of the serum—have to some degree been modified For instance, it has been recommended that a large quantity of broth should be used and that only a small quantity of blood should be added to each flask and this simple device by lessening the antibacterial action of the blood, is certainly attended with considerable success. Again, special media have been advocated—for instance, the employment of bile as a medium in making the blood cultures for the diagnosis of typhoid fever and allied infections By this method it has become possible to be certain of obtaining a positive result within 36 or 48 hours in all cases in which the blood culture is made during the early stages of the disease Let it be here noted that the bile prevents the blood from clotting and completely abolishes all the bacteriotropic actions of the serum Bile as a medium is only of use, however, when the organisms to be cultivated belong to the typhoid-coli group, which flourish on its constituents, it is strongly antagonistic to the growth, or even the life, of most other organisms

Considering these various facts, it appeared that before discovering an ideal medium in which to make blood cultures it was necessary to find some substance which (1) prevented the clotting of the blood, (2) destroyed the bactericidal action of the serum and the activities of the leucocytes, (3) destroyed the inhibitory power of the blood fluids with regard to the growth of the organisms, and (4) which favoured, or at any rate did not hinder, the growth of the pathogenic organisms The possibility that trypsin was such a substance was suggested by certain experiments recently reported and which are here outlined While making researches on the treatment of suppurating wounds Wright found that when the antitryptic power of the serum present in the wound was neutralised by the trypsin set free by the breaking down of the leucocytes of the pus, many organisms grew luxuriantly which were quite incapable of multiplying when the wound contained a serum rich in antitryptic power [1] Emery, continuing these investigations showed that by neutralising the antitryptic power of the serum with trypsin the bactericidal action and other bacteriotropic properties of the serum were destroyed From the same laboratory came the fact that when sufficient trypsin was added to the blood to neutralise the antitryptic power of the blood fluids no clotting took place

It was therefore determined to carry out a series of experiments in order to confirm these results and at the same time to plan the experiments in such a way that the results obtained would show if a broth containing trypsin would be suitable for use in making blood cultures The trypsin used throughout these experiments was the compound solution of trypsin of Messrs Allen and Hanburys [2] as it has been found that this solution is very constant in strength Further, in respect of its sterility, this preparation may generally be relied upon, although it is advisable to test samples from time to time One contaminated batch has been met with in the course of these experiments, but careful testing of more than ten other batches, both aerobically and anaerobically has given no growth of organisms By means of a series of experiments it was shown that a volume of this trypsin diluted 1 in 30 was capable of preventing an equal volume of blood from clotting, and also completely destroyed the bactericidal action of the blood The details of one of these experiments are here given to demonstrate the method used and the results obtained, which were very constant

A typhoid broth culture 24 hours old was diluted 1 in 1 million times, and 10 c mm of this dilution were planted out on to the surface of agar slopes Tubes 1 and 2 gave 7 colonies and 11 colonies respectively, which gives an average of 9 colonies in 10 c mm of 1 in 1 million dilution of the culture

10 c mm of 1 in 1 million dilution of the culture were then mixed with 10 c mm of blood on a sterile slide, and after a few seconds 10 c mm of a dilution of trypsin were added and the whole thoroughly mixed This mixture was then drawn up into the capillary portion of a Wright's bactericidal tube the reservoir of which had been previously filled with sterile broth After the tube had been incubated for four hours at 37° C the contents of the capillary portion were drawn up into the broth filled reservoir, a note being made as to whether clotting had occurred in the mixture The tubes were again incubated for 24 hours and then examined for presence of growth (Table I)

Further experiments were carried out to find the effect of various dilutions of trypsin on the clotting time of the blood The result obtained was that a dilution of trypsin of about 1 in 30 completely inhibited the clotting power whereas

[1] THE LANCET Oct 30th 1915 p 909
[2] Not "Liquor Trypsin Co"

weaker dilutions had the effect of making the blood clot very much more rapidly

TABLE I.

No. of tube	Dilution of trypsin	Result as regards clotting	Result as regards growth
1	1 in 5	No clot	Growth
2	1 „ 10		
3	1 „ 20		
4	1 „ 30	„	„
5	1 „ 40	Clot	No growth.
6	1 „ 50		„
7	1 „ 75		
8	1 „ 100		
Broth control.	None		„

The method used to demonstrate these facts was to fill in a series of capillary tubes with equal volumes of blood and the dilution of trypsin solution controls with salt solution in place of trypsin being also put up When drawing up these mixtures into the tubes a few bubbles small enough to move freely in the bore were introduced By tilting the tube the moment of clotting could be easily ascertained from the fixation of these air bubbles and this conclusion was then confirmed by blowing out the contents of the tube into a vessel of water The experiments were carried out at room temperature An example is given in Table II.

TABLE II.

Contents of tube.	Time of clotting
1 vol. blood and 1 vol. salt solution.	4 minutes 50 seconds
1 „ 1 „ 1 in 200 dilution of trypsin	3 „ 25 „
1 „ „ 1 „ 1 „ 150 „ „	2 „ 0 „
1 „ 1 „ 1 „ 1 „ 100 „ „	2 „ 25 „
1 „ 1 „ 1 „ 50 „	3 „ 30
1 „ 1 „ 1 „ 20 „	Clotting completely inhibited

The next point to be investigated was the effect of trypsin on the opsonic power of the serum, and it was again found from experiments similar to that given in detail below that strengths of about 1 in 30 were necessary to inhibit this bacteriotropic property of an equal quantity of serum

The method used was as follows A series of tubes were filled in with a mixture made by taking 1 volume of washed corpuscles, 1 volume of serum 1 volume of staphylococcus emulsion and 1 volume of trypsin solution or, in the case of the control, 1 volume of salt solution These tubes were then incubated for 15 minutes after which films were made stained with carbol thionin and the average number of staphylococci per leucocyte estimated The results obtained in one such experiment are given in Table III.

TABLE III.

Tube 1—Control	1 vol. corpuscles 1 vol. serum 1 vol. staphylococcus emulsion and 1 vol. normal salt solution	— — —	= 3·05 cocci per cell
„ 2—1 vol. 1 in 200 trypsin solution		— —	= 3·00 „
„ 3—1 „ 1 „ 100	„	— —	= 3·[illegible]
„ 4—1 „ 1 „ 60	„	— —	= 3·00 „ „
„ 5—1 „ 1 „ 40		— —	= 3·30 „
„ 6—1 „ 1 „ 30	„	— —	= 1·35
„ 7—1 „ 1 „ 20	„	— —	= 0·10 „

It may be here noted that the antitryptic power of normal serum is just neutralised or very nearly neutralised, by an equal volume of a 1 in 30 dilution of the trypsin used.

Further experiments were carried out to ascertain whether solutions of trypsin destroyed the power of the serum to inhibit the growth of organisms and it was found that in sufficient strength trypsin totally removed this property of the serum.

The method used to demonstrate this was to take in the one case a quantity of fresh warmed serum, and in the other a similar quantity of warm serum to which 5 per cent of a trypsin solution had been added implant each of these with a small (and equal) number of streptococci and then add sufficient concentrated agar solution to convert the mixture into a jelly on cooling After this mixture had set it was incubated at 37° C and the number of colonies were counted at intervals The details of one such experiment are here given

Tube 1—700 c mm of fresh serum were mixed with 10 c.mm of 1 in 100 000 dilution of a 24-hour-old broth culture of streptococcus progenes, and warmed to about 45° C in a water bath

Tube 2.—35 c mm of trypsin solution were added to 665 c.mm of fresh serum, and with this were mixed 10 c.mm of 1 in 100,000 dilution of the streptococcus used in Tube 1, this mixture being also warmed to 45° C

Tube 3.—700 c.mm of broth were mixed with 10 c.mm of the streptococcus culture

To each of these tubes were then added 100 c.mm of a 4 per cent. solution of agar in normal saline which had been melted and cooled to 47° C The tubes were now rapidly cooled to make their contents set, and afterwards incubated at 37° C (Table IV)

TABLE IV

	Number of colonies after 1½ hours.	Number of colonies after 22 hours.
Tube 1. Serum only	2*	19
Tube 2. Serum and trypsin	23	30
Tube 3. Broth	22	22

* Very minute

The result of all these experiments, which confirmed and amplified the findings of Wright and his fellow-workers strongly suggested that a broth to which sufficient trypsin had been added to make sure that the antitryptic power of the blood was neutralised would be a pre-eminently suitable medium to use for making blood cultures Taking into consideration the fact that the antitryptic power of the serum is generally very much increased in the infected, it was decided that the proportion of trypsin in the broth should be not less than 5 per cent Tubes containing 5 c.c. of such a broth could be relied upon always to neutralise the antitryptic power of 1 c.c of blood. Before passing on to make blood cultures it was ascertained that all the ordinary organisms grew readily in this medium Staphylococcus streptococcus (several strains) pneumococcus B typhosus B paratyphosus A and B, B pyocyaneus vibrio cholerae, micrococcus melitensis, B perfringens, and B anthracis, all gave abundant and rapid growths when planted in 5 per cent of trypsin broth

The first series of blood cultures were made from animals The animals used in these experiments were rabbits which had been infected by intravenous inoculations of staphylococcus or streptococcus Samples of blood were drawn off from the heart at varying intervals after infection and distributed into a series of tubes, some of which contained 5 per cent trypsin broth the others simple broth. The details of these experiments are given in tabular form. (Table V)

TABLE V.—*Showing the Result of Blood Cultures made from Rabbits*

Rabbit 1. Inoculated with 0·8 c c of a 24-hour old broth culture of staphylococcus into the aural vein 5 c.c of blood drawn off from the heart 4 days after the inoculation 0·5 c c of blood added to each tube of medium, 4 tubes of trypsin broth and 4 tubes of simple broth (5 c.c.) These tubes were incubated at 37° C and examined at varying intervals

Trypsin broth.				Simple broth			
Tube	Incubation.			Tube	Incubation		
	11 hours	1 day	2 days		11 hours	1 day	2 days
1	—	—	—	1	—	—	—
2	—	—	—	2	—	—	—
3	—	—	—	3	—	—	—
4	—	—	—	4	—	—	—

NOTE.—The sign — indicates that no growth could be detected either by the examination of films or by subculture the sign — indicates that growth had occurred

Same rabbit Blood drawn off at the same time but only 0·05 c c of blood added to each tube of broth (5 c.c)

Trypsin broth.				Simple broth.			
Tube	1 day	2 days	6 days	Tube	1 day	2 days	6 days
1	—	—	—	1	—	—	—
2	—	—	—	2	—	—	—
3	—	—	—	3	—	—	—
4	—	—	—	4	—	—	—

Rabbit 2 Inoculated intravenously with 0 2 c c of the same staphylococcic broth culture Blood drawn off from the heart 4 days after inoculation 0 5 c c of blood added to each tube of broth (2 c c)

Trypsin broth					Simple broth					
Tube	16 hours	40 hours	3 days	4 days	Tube	16 hours	40 hours	3 days	4 days	5 days
1	+	+	+	+	1	—	+	+	+	+
2	+	+	+	+	2	—	+	+	+	+
3	+	+	+	+	3	—	—	—	—	—
4	+	+	+	+	4	—	—	—	—	—
5	+	+	+	+	5	—	—	—	—	—
6	+	+	+	+	6					
7	—	—	—	—	7					

Rabbit 3 Inoculated intravenously with 0 5 c c of a 24-hour old broth culture of streptococcus pyogenes 5 c c of blood drawn off from the heart 16 hours after the inoculation 0 5 c c of blood added to each tube of broth (3 c c)

Trypsin broth				Simple broth			
Tube	11 hours	1 day	2 days	Tube	11 hours	1 day	2 days
1	+	+	+	1	+	+	+
2	+	+	+	2	—	+	+
3	+	+	+	3	—	+	+
4	+	+	+	4	—	+	+
5	+	+	+	5	—	—	+

Same rabbit Blood drawn off from the heart 3 days after the inoculation 0 05 c c of blood added to each tube of broth (4 c c)

Trypsin broth			Simple broth				
Tube	26 hours	2 days	Tube	26 hours	2 days	4 days	6 days
1	+*	+	1	+	+	+	+
2	+	+	2	+	+	+	+
3	+	+	3	+	+	+	+
4	+	+	4	—	—	—	—
5	+	+	5	—	—	—	—

* Abundant growth

Rabbit 4 Inoculated intravenously with 0 1 c c of the same streptococcus culture, 5 c c of blood drawn off from the heart 16 hours after the inoculation, 0 5 c c of blood added to each tube of broth (3 c c)

Trypsin broth				Simple broth				
Tube	11 hours	1 day	2 days	Tube	11 hours	1 day	2 days	6 days
1	+	+	+	1	+	+	+	+
2	+	+	+	2	+	+	+	+
3	+	+	+	3	+	+	+	+
4	+	+	+	4	—	+	+	+
5	+	+	+	5	—	—	—	+

Same rabbit Blood drawn off from heart 3 days after inoculation 0 1 c c of blood added to each tube of broth (4 c c)

Trypsin broth		Simple broth	
Tube	25 hours incubation	Tube	26 hours incubation
1	+ abundant growth	1	+ slight growth
2	+	2	— Not examined subsequently
3	+	3	—
4	+	4	—
5	+	5	—

Same rabbit 0 5 c c of blood drawn off from the heart 40 hours after the inoculation 0 05 c c of blood added to each tube of broth (4 c c)

Trypsin broth					Simple broth				
Tube	7 hours	1 day	2 days	5 days	Tube	7 hours	1 day	2 days	5 days
1	+	+	+	+	1	—	—	—	—
2	—	+	+	+	2	—	—	—	—
3	—	—	—	—	3	—	—	—	—
4	—	—	—	—	4	—	—	—	—
5	—	—	—	—	5	—	—	—	—

These results demonstrate that the use of trypsin broth was of distinct advantage in each case Growth was detected earlier in almost every experiment and also in most cases occurred in a larger percentage of the tubes. In one experiment growth was detected after incubation for 24 hours in two out of five of the trypsin tubes, but in a similar number of cultures made in simple broth no growth was detected even after the lapse of five days

Table VI shows the results obtained in a series of blood cultures made on patients The usual technique was employed—blood being drawn off from a vein at the bend of the elbow and planted into a series of tubes

TABLE VI

Patient 1 Soldier from Gallipoli with dysentery 10 c.c. of blood drawn off from a vein at the bend of the elbow 1 c c of blood planted into each tube, and examined after varying intervals

Trypsin broth						Simple broth.					
Tube	Incubation					Tube	Incubation				
	24 hours	2 days	3 days	4 days	5 days		24 hours	2 days	3 days	4 days	5 days
1	+	+	+	+	+	1	—	—	+	+	+
2	—	+	+	+	+	2	—	—	—	—	+
3	—	+	+	+	+	3	—	—	—	—	—
4	—	—	—	—	—	4	—	—	—	—	—
5	—	—	—	—	—	5	—	—	—	—	—

Organism isolated proved to be B paratyphosus A

Same patient Blood culture performed 2 days later than the above 10 c c of blood drawn off, 1 c c planted into each tube of broth

Trypsin broth					Simple broth.				
Tube.	24 hours	2 days	3 days	7 days	Tube	24 hours	2 days	3 days	7 days
1	+	+	+	+	1	—	—	+	+
2	+	+	+	+	2	—	—	—	—
3	—	—	—	—	3	—	—	—	—
4	—	—	—	—	4	—	—	—	—

Organism isolated proved to be B paratyphosus A

Patient 2 Soldier invalided from Gallipoli with dysentery 10 c c of blood drawn off from a vein at the end of elbow 1 c c of blood planted into each tube

Trypsin broth				Simple broth			
Tube	24 hours	2 days	3 days	Tube.	24 hours	2 days	3 days
1	+	+	+	1	—	—	+
2	+	+	+	2	—	—	+
3	—	+	+	3	—	—	+
4	—	—	+	4	—	—	+
5	—	—	+	5	—	—	—

Organism isolated proved to be B paratyphosus A.

Patient 5 A case of severe pneumonia 10 c.c of blood drawn off from the vein

Trypsin broth		Simple broth		
Tube	24 hours.	Tube	24 hours.	5 days
1	+	1	—	—
2	—	2	—	—
3	+	3	—	—
4	—	4	—	—
5	—	5	—	—

Organism isolated proved to be a streptococcus

Here again the results obtained in every case show advantages in using trypsin broth, either in respect of the number of tubes in which growth was found or as regards the time taken for growth to appear In one case, for the details of which we have to thank Dr H M Woodward, no growth appeared at all in the tubes containing ordinary broth, whereas abundant growth was present in every trypsin broth tube at the end of 24 hours It is also to be noted that three of the blood cultures here quoted as demonstrating the value of trypsin yielded a growth of paratyphoid bacilli (B paratyphosus A) and in every case within 24 hours Such a result is similar to that which would have been obtained by using bile as the medium for blood culture. Further the fact that paratyphoid bacilli as well as staphylococci and streptococci were all recovered more easily by the use of trypsin lends support to the idea that this procedure, depending, as has been shown, upon elimination of the antibacterial properties of the blood, has a wide application in the investigation of disease and is not especially advantageous for any one group of pathogenic organisms

Having from these results satisfied ourselves that the use of trypsin broth in making blood cultures was of a very distinct advantage it became an important practical point to ascertain if such a broth retained its properties on keeping The following experiments were therefore carried out

Five per cent of trypsin solution was added to broth on April 8th and kept for several weeks at laboratory temperature Its tryptic power was determined on April 8th, and at intervals subsequently, by making from it a series of dilutions and mixing one volume of each of these with one volume of milk to which 1 per cent of calcium chloride (cryst) had been added After incubation for 15 minutes at 50° C these mixtures were thrown into water to ascertain if clotting had taken place

TABLE VII.

Date of experiment	Dilutions of trypsin broth			
	1 in 50	1 in 100	1 in 150	1 in 200.
April 8th	Clot	Clot	Clot	Not done.
15th ..			Loose clot	No clot
25th				
May 25th		"		
July 1st			No clot	"

Another series of experiments was made with the trypsin broth made up on April 8th to determine roughly whether it would retain its power to prevent the clotting of blood A volume of the broth was mixed with varying quantities of blood and the formation or non formation of a clot noted

TABLE VIII

Date of experiment	2 vols of broth 1 vol of blood	1 vol of broth 1 vol of blood
April 8th ...	No clot	No clot
15th ..		
May 10th		
25th		Clot
July 1st	Clot	

From these experiments it is seen that for at least seven weeks the broth may be kept at room temperature without serious loss of its tryptic power or of its power to prevent the clotting of blood but that after that period its deterioration becomes more evident

Conclusions —The authors' experiments have confirmed the findings of Wright and his fellow workers, which showed that when, by mixture with trypsin, the antitryptic power of blood is neutralised, the blood loses its power of clotting and also its antibacterial properties These are precisely the changes which it is desirable to bring about when attempting to cultivate pathogenic micro-organisms from the circulating blood A series of blood cultures performed in duplicate with trypsin broth and simple broth has shown that the employment of trypsin in that procedure is clearly advantageous—the organisms having been in some cases recovered only in the trypsin tubes, while in the other cases they were recovered earlier and more frequently in these than in the control tubes It is probable that this method favours the cultivation of *any* microbe that may be present in the blood, and not especially one particular organism or group of organisms, as is the case with bile media, staphylococci streptococci, paratyphoid bacilli and in one experiment not quoted, anthrax bacilli, were readily isolated from blood by the use of trypsin broth.

In order to be sure of neutralising the antitryptic power of the inoculated blood it is recommended to employ broth containing not less than 5 per cent of trypsin solution (compound solution of trypsin, Allen and Hanburys) and to add not more than 1 c.c of blood to each 5 c.c. tube of such a broth. When a supply of broth is not at hand or the blood has to be sent by post to a laboratory, undiluted trypsin solution may conveniently be mixed with the blood specimen immediately on its withdrawal from the vein, say in the proportion of 1 of trypsin to 4 of blood. Subsequently this unclotted blood should be planted into broth tubes for incubation—or where this cannot be done the blood may be incubated without dilution and the growth of organisms sought for in the plasma.

TREATMENT OF CARRIERS OF AMŒBIC DYSENTERY

NOTE ON THE USE OF THE DOUBLE IODIDE OF EMETINE AND BISMUTH.

BY H H DALE, M D, F R S

(*From the Department of Biochemistry and Pharmacology Medical Research Committee*)

THE treatment of entamœbiasis in this country during the past year has been largely concerned with the problem of freeing the chronic 'carriers from their infection Experience in Egypt in dealing with patients who continue to pass cysts after the dysentery has completely cleared up seems to have led to the conclusion that a full course of 10 or 12 grains of emetine hydrochloride, given hypodermically, will practically always eradicate the infection The experience in this country, to judge from hospital records which I have had the privilege of seeing, does not altogether tally with this, for there seems to have been a not inconsiderable proportion of cases in which such a course of emetine has led only to a temporary absence of cysts from the fæces followed by an early recurrence These cases, relapsing into cyst-passing again and again after successive courses of emetine have presented a difficult problem to the medical officers in charge of them Their frequent occurrence among the cases treated in England was to be expected for these consisted largely of cases which had undergone relapse into chronic 'carrying, after apparently successful treatment of their acute infection with emetine, others had probably never been freed by repeated dosage with emetine before their return to this country, while others again, were apparently 'contact carriers with no history of previous dysentery or treatment It was clearly a matter of importance that these men should be freed from the danger to themselves and to others entailed by the persistent focus of infection.

The pathology of the chronic carrier of entamœba histolytica seems to be still imperfect in that it has not been definitely ascertained whether the cyst-producing entamœbæ are living freely in the intestinal contents, like entamœba coli or are localised in a partly healed pocket or sinus The occurrence of liver abscess without acute dysentery seems to favour the latter supposition In either case the relative failure of hypodermic treatment with emetine in

this condition could be explained by the entamœba being more or less completely shut off from the circulation and tissue fluids of the patient. The alleged superior efficacy in these cases of the older treatment with ipecacuanha by the mouth is in line with such a conception. By these considerations I was led to suggest a trial, in cases refractory to hypodermic emetine, of oral administration of this alkaloid in a form which gave promise of combining the advantages of the ipecacuanha treatment with freedom from its notorious difficulties and drawbacks The results have been so far promising that it seems worth while, in the interests of a wider trial, to make mention of them at their present stage of incompleteness

The compound which has been used is a double iodide of emetine and bismuth which was described last year by Du Mez, who suggested it as suitable for oral administration of emetine It has the useful property, from this point of view, of being practically insoluble in dilute acids, but soluble with comparative ease in weak alkali It might be expected therefore to pass the stomach unaltered, and then, being dissolved in the alkaline juices of the duodenum, to undergo gradual decomposition as it passed along the bowel, with liberation of emetine and precipitation of bismuth sulphide Du Mez obtained promising, but rather irregular, results on dogs to which he gave the compound So far as I have been able to ascertain it has not hitherto been tried clinically

My colleague, Dr Barger, prepared me a sample of this double iodide, and I tested it, in the first place, on cats I found that large cats, weighing upwards of 3 kilogrammes, could take repeated doses of 40 milligrammes without vomiting, the only effect being some looseness of the bowel 60 milligrammes (containing about 20 milligrammes of emetine) produced vomiting, but the fact that this occurred some 5 hours after the administration, while purgation occurred about 1½ hours after the drug had been given, indicated that the vomiting was not due to direct irritation of the stomach, but was secondary to liberation and absorption of emetine in the bowel, and therefore comparable to the vomiting which follows a large hypodermic dose If treatment with these larger doses was continued, the symptoms of chronic emetine poisoning, which I have previously described, made their appearance, as with hypodermic administration

Messrs Burroughs Wellcome and Co kindly placed at my disposal a quantity of the compound for preliminary clinical trial, and further quantities were made to the order of the Medical Research Committee The first trial was made at the Graylingwell Military Hospital, Chichester, by kind coöperation of Lieutenant-Colonel H A. Kidd, R A M C, of Major J L Maxwell, R.A M C, and the other medical officers in direct charge of the patients, and of Mr Geoffrey Paget and Mr W O Redman King, who made the protozoological examinations Mr King has furnished me with a résumé of the results on ten patients, all of whom had repeatedly shown early recurrence of cyst-passing after courses of hypodermic emetine Of these patients six have already been discharged as cured, having failed to show any histolytica cysts, with stringent daily examination of the fæces, during six weeks, as result of a full course of the double iodide by the mouth Two of these cases have not much evidential value, since the double iodide treatment was started while cysts were still absent, as the immediate result of a hypodermic course. The other four are open to no such criticism A seventh case relapsed after a full course of the double iodide but, after a second course has been free from cysts for four weeks, so that a permanent cure is probable The eighth case has been unable to stand a full course owing to nausea, but cysts have been absent for some time, with administration on alternate days, so that the result is hopeful There remain one case in which relapse has occurred after two full courses and one in which the treatment could not be continued owing to the vomiting and diarrhœa which it caused

Bearing in mind the fact that the cure of these patients had been practically given up as hopeless with the ordinary hypodermic emetine treatment, and that the standard of cure demanded—six weeks absence of cysts with daily examination—was a very high one, the results must be considered promising Trouble occurred in some cases from vomiting but this was overcome in most instances Administration during or just after a full meal seems to have been the best method for avoiding vomiting, probably owing to the acidity of the stomach contents at this time Some patients who were reported as vomiting with the first doses seemed to acquire a tolerance subsequently The fact that the vomiting is delayed probably means that most of the dose is in the intestine before it occurs, so that the comfort of the patient is affected more than the efficacy of the treatment 30 to 36 grains, equivalent to about 10 to 12 grains of emetine hydrochloride, has been regarded as a full course, and the daily dose has varied from 2 to 4 grains, given in capsules 3 grains, representing 1 grain of emetine hydrochloride, seems to be a good average daily dose, and 12 such doses may be given in succession, unless giddiness, depression, or diarrhœa become severe. The frequency of vomiting is in no way comparable to that seen with the ipecacuanha treatment, and there is no need, as a rule, to restrict diet, to keep the patient recumbent, or to adopt the precautionary measures which the ipecacuanha treatment entails The daily dose suggested of 3 grains of double iodide is equivalent in emetine to some 60 grains of ipecacuanha.

Several other cases, privately treated, are still under observation, but the results, which Dr G C Low and others have kindly communicated to me, are similarly promising A further trial is in progress at another military hospital through the kind interest of the commanding officer and of Mr C C Dobell, who is responsible in this instance for the protozoological findings One fresh case of acute dysentery has been treated by Dr Low with daily doses of 3 grains of the double iodide, with results apparently as good as those of the hypodermic emetine treatment If it be a fact that the residual infection, with healing ulceration, is more accessible to the emetine given by the mouth, it may be worth while to consider whether the later doses of the usual course of emetine, given in an acute case, would not with advantage be given as the double iodide It seems possible that the risk of subsequent "cyst-carrying" might thus be diminished The possibility of using the emetine-bismuthous-iodide prophylactically seems to me also well worthy of consideration I believe that most men could take a grain or so every few days without any notable effect on health, comfort, or efficiency I am having some tablets prepared, keratin coated, as an additional safeguard against vomiting, and will try them on some normal subjects in the first instance Experience would have to show how small and infrequent a dose would give protection to those exposed to the chance of being infected A drawback to the wide use of the compound as a wholesale prophylactic would, under present conditions, be the expense entailed The ordinary emetine salts are expensive enough, and the extra trouble of making the double iodide will presumably make the latter, dose for dose, even more costly, though the difference should not be very large

My best thanks are due to the gentlemen above mentioned, who have interested themselves in the trials recorded and to others who are giving their coöperation in those still in progress

Reference—Du Mez: Philippine Jour of Sci (B) X., p 73 1915

Dr T G Moorhead, F R C P Irel, Captain, R A M C (at present on foreign service), visiting physician to the Royal City of Dublin Hospital, has been elected professor of practice of medicine in the School of the Royal College of Surgeons in Ireland, in room of Sir John Moore, retired

AN EXAMINATION FOR MATERNITY AND CHILD WELFARE WORKERS—In order to assist local authorities in the selection of suitable child welfare workers the Royal Sanitary Institute have just established an examination in sequence with the present examination for health visitors but requiring a wider experience and a more developed knowledge of the subjects cognate to child welfare, including ante-natal conditions and the various laws and regulations relating thereto The examination will be supplemental to the health visitors' examination the certificate for which is one of the qualifications named in the General Order of the Local Government Board (1909) relating to the office of health visitor and school nurse It is proposed to hold the first examination in London on Dec 8th and 9th A syllabus has been issued and can be obtained from the Secretary of the Royal Sanitary Institute, 90, Buckingham Palace road London, S W

A NOTE ON

THE NECESSITY FOR PROLONGED TREATMENT IN CASES OF INFANTILE PARALYSIS

BY FRANCIS HERNAMAN-JOHNSON, M.D ABERD,
CAPTAIN (TEMPORARY) R.A.M.C. CONSULTING RADIOLOGIST, ALDERSHOT COMMAND ETC

MUCH of our treatment of the weakness and deformity which may result from an attack of poliomyelitis fails owing to lack of proper "following up" I am fortunately able to illustrate the good effects of perseverance by giving notes and illustrations of the present-day condition of a child whose case I reported in THE LANCET of June 24th, 1911 (p 1700) The following is a quotation from that part of my article which described what was found in that case

"The patient, a girl aged 5 years suffered from infantile paralysis of the right lower limb The attack had occurred at the age of 18 months The child was wearing an appliance weighing 6 lb., the main feature of which was a heavy steel running up the leg from ankle to waist and secured round the latter by a metal band The patient progressed by a curious hopping motion dragging the affected limb behind her with the foot everted almost to a right angle The limb had shown no improvement for two years

"On examination I found all the muscles below the knee to be completely paralysed, so that the condition known as 'flail ankle' obtained The thigh and buttock muscles were small and weakly, but they responded fairly well to faradic stimulation Partial subluxation of the knee joint was also present, partly due to the lack of tone in the biceps and quadriceps femoris, but chiefly depending on the complete failure of the gastrocnemius. The whole limb was shrunken, and showed 2½ inches of relative shortening It was, moreover, cold and clammy to the touch with a temperature 2°F below that of its fellow, a condition which I judged to be in part due to the weight and rigidity of its supporting apparatus (Fig 1 shows the diseased limb) As is frequently the case in such limbs, sensibility to pain and changes of temperature was greatly diminished, although tactile sensation remained unaffected A careful electrical investigation led me to conclude that the leg muscles were probably hopeless, but I nevertheless made bold to tell the parents that I would enable the child to do without external irons and that she need wear no support of any kind above the middle of the thigh"

A special boot was constructed (weighing only 2 lb), in which light steel supports were concealed (Fig 2) Under treatment by electrical stimulation a very rapid increase in size and power occurred in the buttock and thigh muscles At the end of two months—when the treatment was suspended—there was not, however, any sign of improvement below the knee.

The child has been seen twice yearly until recently and has had about a month's electrical treatment on each occasion At the end of two years I was surprised to find that power was beginning to return in the calf muscles and the "relative shortening" had decreased from 2½ to 1½ inches I took away some of the support from the knee, and a year later removed it all Early in 1915, four years after the patient

FIG 1 FIG 2 FIG 3

FIG 1.—1911 Shows backward displacement of knee and atrophy of calf muscles

FIG 2.—1911 Specially devised boot no external irons weight 2 lb Artificially padded calf

FIG 3.—1915. The curve of the leg has become normal, tone having been restored in the hamstring and calf muscles

was first examined, some amount of control on the ankle joint had been regained and the affected limb is now only one inch shorter than its fellow The child now wears an ordinary boot with a little leather stiffening, and an internal raised sole

Fig 3 is unfortunately not so good a photograph as Fig 1 It shows nevertheless that the curve of the leg has become normal—a result due to the restoration of tone in the hamstring and calf muscles

FIG 4

Right knee-joint. January 1911. Note rudimentary patella and backward curve of limb

FIG 5

Right knee-joint. June 1915 Note normal shape of limb.

Figs 4 and 5 demonstrate that *pari passu* with the visible improvement, the size and density of the bones have increased.

The above is an example of a case properly dealt with over a period of years There is a converse to such a picture—I have seen cases apparently much less severe go completely to the bad for want of constant attention.

Any apparatus which may be necessary needs frequent modification Support must not be abruptly withdrawn from a recovering muscle, or it will relapse On the other hand, if more aid is given than is necessary progress will be retarded In a favourable case the relative shortening of a limb should grow less year by year and therefore any boot extension must be altered accordingly

The above is the mechanical side of the question The physiological aspect is equally important. As to prognosis, the case here illustrated shows that an unfavourable opinion

is not always borne out by subsequent events, even though based on careful investigations In most cases the prognosis is inseparably bound up with the treatment The effect of electrical stimulation on nerves and muscles which still retain some power of response is rapid and marked A surprising difference may be brought about in six or eight weeks, and the general growth of the limb is accelerated for some months afterwards So long, however, as the child is growing there is a chronic tendency for the affected limb to lag behind its fellow, and there is thus need in young children for a short course of treatment at least twice yearly

The therapeutic lessons which have been learned in connexion with infantile paralysis are of special interest at the present time, as the rules to be followed are for the most part equally applicable in dealing with war injuries to nerves and muscles The three following, at least, should always be kept in mind —

1 A muscle which is chronically overstretched cannot recover It must be relaxed by means of a suitable splint This principle was insisted on by Robert Jones many years ago, and its importance cannot be over emphasised

2 When such a muscle responds moderately well to faradism—or, in more modern terms, to the small or medium capacities of the Lewis Jones instrument—its recovery will be greatly hastened (and in some cases even determined) by daily rhythmical electrical stimulation The relaxed position must, however, be maintained throughout

3 Exercise, whether voluntary or electrically provoked, must never be carried to the point of fatigue The contraction of a muscle should be not less vigorous—with the same stimulus—at the end of a sitting than at its commencement It is better that recovery should be delayed by over caution than that it should be made impossible by excess of zeal

Cavendish-square W

SIX CASES OF WOUNDS OF THE BUTTOCK WITH PERFORATION OF THE INTESTINE

BY R B BLAIR, M B EDIN, F R C S EDIN,
CAPTAIN R A M C.

THIS short series illustrates the grave results which may accompany wounds inflicted by rifle or shrapnel bullets or pieces of shell in the region of the buttocks I have learnt by personal experience that these wounds frequently penetrate the peritoneal cavity and cause injury to the viscera, and that they should therefore be subjected to the most careful investigation During the last four months six cases of buttock wounds have been admitted into a ward under my charge at a clearing station Some of these on first examination were thought to be slight but subsequently proved to be of vital importance. If the wound is probed and the track does not appear to pass towards the peritoneal cavity one may be led to infer that the abdominal viscera have escaped injury The first of these reported cases shows that this test may be fallacious, and that further investigation is necessary

It is frequently far from easy to be certain that penetration of the abdominal cavity has occurred The signs and symptoms of such a lesion may be self evident, or, on the other hand, so anomalous as to give rise to great uncertainty In those cases easy of diagnosis the general appearance of the patient is typical The abdominal facies, pallor, sunken eyes and anxious expression, the legs drawn up, and respirations rapid and thoracic in type present an unmistakable picture The abdomen is rigid and tender, vomiting is present and the pulse is rapid and wiry

Difficulties in diagnosis arise when such symptoms are slight in degree The facial appearance may not assume an abdominal character, but generally a look of distress is present Vomiting may be a delayed symptom although nausea is often complained of Abdominal pain may be slight and only elicited on pressure Rigidity of the abdominal wall may be absent and tenderness may be limited to one localised part The character of the pulse is perhaps the most important sign—its rate is invariably increased it becomes small in volume, thready, and may be irregular

The most important guides, then, are the pulse and facial appearance As one famous consultant remarked on seeing one of these cases "Yes, he looks more ill than a buttock case should" If the wound be probed, the track may or may not pass in the direction of the abdominal cavity In all cases of doubt it is necessary to enlarge the wound and explore it thoroughly

The first of these cases is a striking illustration of many of the points to which I wish to draw attention

CASE 1 —Shell wound of left buttock *History* —Wounded at 10 A M on April 18th, arrived at V—— at 10 P M same day, when he had cocoa to drink and vomited soon after wards He reached the clearing station at 1.30 A.M on April 19th He walked into the ward, said he was slightly wounded, asked for some cocoa, and said he wanted to sleep He slept well, had a breakfast of tea and bread and butter at 7 30 A M, and was sick once at 9 A M At 1 P M he passed a small, loose, dark motion, and said he felt much better He complained of some abdominal pain, which he referred to the concussion of the shell

On examination the patient did not look seriously ill, he showed no pallor, but there was an expression of distress. The pulse was rapid (110 to 120) and small in volume The abdomen moved well on respiration, and rigidity was not present There was slight tenderness on palpation over the brim of the pelvis on the right side, percussion gave a resonant note The entrance wound, 1 inch above the left tuber ischii, had an inward and slightly upward direction towards the natal cleft Vomited matter, dark brown in colour, not stercoraceous, and small in quantity When the patient was first seen by Colonel H M Rigby he was standing upright, quite unconscious of his serious condition

Operation at 4 p m, April 19th —The buttock wound was laid open and the track was found to pass towards the coccyx, which was fractured On this discovery it was decided to explore the abdomen This was done by a median incision between the umbilicus and the pubes On opening the peritoneal cavity no free blood was found There was evidence of peritonitis in widespread patches of lymph along the lower coils of the small bowel The lowest portion of the ileum was found adherent in the right iliac fossa, where free fluid like small bowel content was present Free fluid was also present in the pelvis An oblique tear 1 inch in length was found in the wall of the bowel about 18 inches from the ileo-cæcal junction Just inside the intestinal lesion there was a ragged piece of shrapnel about the size of the terminal phalanx of the thumb, within the lumen of the bowel It was thought necessary to resect the damaged portion, and about 2 inches were removed An end to-end anastomosis was done with sutures of linen thread The free fluid was mopped up with dry gauze, no other lesion was found A rubber drain was introduced into the pouch of Douglas and the abdominal wall closed in layers with catgut During the operation the patient had two pints of saline given subcutaneously

Recovery was uninterrupted The drain was removed on the fourth day, and secondary sutures were introduced into the buttock wound on the fifth day The bowels were moved on the fourth day On the tenth day after the operation the patient was evacuated to the base

There are many points of interest in this case, but the most striking was the almost complete absence of symptoms indicating a severe abdominal injury The patient was able to walk into the ward 13½ hours after being wounded, and was able to stand up 15 hours later He had delayed vomiting in 12 hours after he received his wound although he had had fluids to drink The severity of the lesion was obscured by the absence of definite physical signs, the extraordinarily good condition of the patient and the misleading direction of the track of the missile

The following are brief notes of the five remaining cases, to which slight reference has been made

CASE 2 —Shell wound of right buttock Wounded 10 A M Dec 19th, 1915 Admitted 8 A M, Dec 20th Entry wound situated 2 inches below and behind the anterior superior spine on the right side No wound of exit Vomiting took place on the evening of the 19th and once again after admission No complaint of abdominal pain but tenderness was present in the right iliac fossa on palpation Pulse rate 108

Operation —Laparotomy, right rectus A small quantity of blood was present in the abdominal cavity A perforation was found in the right wall of the cæcum and sutured with linen thread Pelvic drain *Result* —Died at 3 P M on Dec 21st Extensive gas gangrene was found in the wall of the cæcum and surrounding tissues

Remarks —The patient did not look like an abdominal case The pulse rate was increased and there was tenderness in

the right iliac fossa, but it was only after exploration of the wound that it was decided to open the abdomen

CASE 3 Shrapnel wounds of buttocks Wounded at 10 A.M., Feb 13th, 1916 Admitted at 8 A.M., Feb 15th Entrance wounds one in each buttock No wounds of exit Patient in bad condition Repeated vomiting of dark brown stercoraceous fluid Pulse 130, thready

Operation —Median laparotomy A small quantity of free blood was found in the peritoneal cavity Two perforations were found in the upper part of the ileum, with a tear in the mesentery Four inches of gut were resected, and an end to-end anastomosis was made One perforation in the rectum was sutured Pelvic drain *Result* —Died four hours later

Remarks —The signs and symptoms of a severe abdominal lesion were obvious The patient had to remain in a "dug out for nearly 48 hours on account of shell fire before being brought to hospital

CASE 4 —Gunshot wound of left buttock Wounded 4 A.M., March 27th, 1916 Admitted 6 P.M. on same day Entry wound ½ inch below the natal fold in the middle line of the posterior surface of the left thigh No exit wound Abdominal pain was felt one hour after the wound was received. He felt sick after admission, and vomited once before the operation On palpation tenderness was present in the left iliac fossa Pulse 80 of good quality

Operation 10 p m —Laparotomy, left rectus The peritoneal cavity contained a considerable quantity of free blood Two small perforations were found in an upper loop of the ileum, and were sutured with linen thread No other lesions were found The bullet was not found Suprapubic drain inserted *Result* —Good recovery

Remarks —The general condition and pulse were good The history of abdominal pain after the wound was received was definite The wound of entrance was below the buttock, but when shot the patient was in a stooping attitude

CASE 5 —Shrapnel wound of left buttock Wounded 4 P.M., March 27th 1916 Admitted 6 A.M., March 28th Wound of entry in the left buttock No exit wound Abdominal pain and rigidity were present, vomiting took place on the evening of March 27th, and was repeated during the night Pulse 120, feeble

Operation —A catheter passed produced bright blood The wound in the buttock was explored, and found to have fractured the coccyx. Median laparotomy Multiple wounds were found in the small gut, and a tear 2 inches in length was found in the superior wall of the bladder A double resection of 18 inches and 4 inches, with end to-end anastomosis was done, three other perforations were sutured, and the tear in the wall of the bladder was closed by suture A fragment of shrapnel was found lying in a fold of mesentery Pelvic drain *Result* —Died on completion of the operation

Remarks —The condition of this case was desperate, he looked pinched and collapsed and the pulse was of very poor quality

CASE 6 —Shell wound of left buttock Wounded 12 P.M., April 6th, 1916 Admitted 6 A.M., April 7th Wound of entry in the left buttock, no exit wound Tenderness on palpation was present in the right iliac fossa and the right lumbar region The patient vomited twice after admission and during the night Pulse 120

Operation —Median laparotomy A quantity of foul smelling fluid was present in the peritoneal cavity, but no blood Peritonitis was generalised Two perforations were found in the ileum, 12 inches from the ileo-cæcal junction, they were sutured with linen thread No fragment of metal was found A pelvic drain was inserted *Result* —A fæcal fistula developed on the fourth day after the operation The patient was evacuated to the base on the eleventh day after the operation The discharge was then less, the pulse was 96, temperature 99 8° F, and the general condition was good

Remarks —The patient looked ill the pulse was rapid, there was vomiting, and the direction of the wound was towards the abdomen

I wish to express my indebtedness to Lieutenant-Colonel J W Langstaff for his kind permission to publish these cases

---

Sir Robert Woods, ex President, Royal College of Surgeons in Ireland, has been appointed honorary professor of laryngology in the University of Dublin

DONATIONS AND BEQUESTS —The Chelsea Hospital for Women has received from the Public Trustee a grant of £1600 from the Geldart Estate, £50 from the Goldsmiths' Company and £250 from the Rev Perceval Laurence towards the cost of the rebuilding of the hospital —An anonymous gift of £10 000 3½ per cent War Loan has been received by the governors of the Sheffield Royal Hospital —By will the late Rev George Birkett Latreille Brownswood Park, Finsbury Park bequeathed 1000 guineas to the Great Northern Hospital Holloway for the endowment of a George and Philos Bed

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL

A CASE OF DOUBLE CERVICAL RIB

BY HAROLD F RENTON, M D, B S LOND, M R C S, L R C P LOND

CASES of cervical rib are by no means uncommon, but the history of a case that came recently under my notice would seem to make it of sufficient interest to justify its publication

The patient, a man aged 42, had been under treatment for a considerable period for what he called dyspepsia This consisted of pain which passed in girdle fashion along the left ribs from the axilla towards the breast and backwards towards the scapula The pain had no relation to food, however, and nothing gave him relief He came to see me on May 14th of this year complaining that he had injured his neck He had been lifting a heavy sack of flour and had slipped in some manner, so throwing the whole weight of the sack against the side of his neck Since the accident he had been troubled with persistent pain on the left side of the neck and a dull, aching pain down the left arm The pain in the arm followed the inner aspect of the limb and passed downwards to the third and fourth fingers and the inner side of the ring finger There was, moreover, a feeling of numbness on the inner and back aspect of the upper arm The patient complained that his three inner fingers seemed to be asleep, and that the pain in the arm was worse when the limb was allowed to hang loose, vertically downwards, and when he rested his head on his pillow at night

Examination —There was no superficial bruising or discolouration The muscles of the left side of the neck appeared to be very highly developed, more so than those of the right, which was strange considering that the patient

Radiogram taken from behind showing cervical ribs A, left B, right The first and second dorsal ribs on each side are marked I. and II.

was a right-handed man, and there was a large swelling completely filling the left supraclavicular fossa The swelling was hard and immovable, and pressure upon it caused acute pain The subclavian artery could be felt passing outwards across its surface and was proved to have no connexion with it The movement of the arm was free in all directions, and the patient only complained of pain when the limb was pulled vertically downwards There was no anæsthesia of the arm, though sensation along its inner aspect as far as the fingers was somewhat impaired The power in the left hand was good There was no delay in the radial pulse as compared with the right side, and the hand was warm and of good colour proving that there was no interference with the circulation A diagnosis of left cervical rib was made The patient was subjected to X ray examination and the diagnosis was confirmed Moreover, the presence of a small cervical rib upon the right side was revealed

The photograph of which the accompanying illustration is a reproduction was taken in the following manner The patient was placed upon his back upon a couch the head being allowed to hang just over the edge. This position served to separate the ribs and throw the lower jaw away from the region of the neck. The plate was placed behind the patient, the exposure allowed being 45 seconds A

mammoth tube was employed, the "rays" passing vertically from a distance of 20 inches

The interest of the case would seem to be centred in the following points 1 The absence of symptoms, with the exception of the girdle pain, until the day of his accident In a young individual symptoms are rare at first, but when the sufferer has reached the age of the patient under discussion pressure symptoms are commonly present 2 The possibility that the accident had resulted in partial dislocation of the cervical rib, so inducing an acute onset of the typical symptoms 3 The great length of the cervical rib as shown in the X ray photograph 4 The explanation of the distribution of the pain

The pain down the inner side of the arm and affecting the inner fingers, as described above, was due to pressure upon the lower nerve trunk of the brachial plexus, resulting in sensory disturbance in the areas of skin supplied by the lesser internal cutaneous, internal cutaneous, and ulnar nerves The pain spreading in girdle fashion round the left ribs, which had been attributed to dyspepsia was probably reflex in origin, passing from the lesser internal cutaneous to the second intercostal nerve by way of the intercosto-humeral nerve which communicates with both

Oldham

A CASE OF OMENTAL FIBROMA

BY E MANSEL SYMPSON, M D CANTAB, M R C S,
HONORARY SURGEON LINCOLN COUNTY HOSPITAL LIEUTENANT COLONEL, R A M C (T F) 4TH NORTHERN GENERAL HOSPITAL.

AS peritoneal or omental fibromata are not very common it seems worth while placing the following on record

The patient, a married woman aged 37, was sent to me by Mr H H Ballachey, of Heckington, and admitted to the Lincoln County Hospital on May 9th suffering from an abdominal tumour She had had four children (three now living), one miscarriage 11 years ago the last child having been born seven years ago For eight years past she had noticed a "lump" growing in the left iliac fossa In September, 1915, this suddenly increased in size and became more centrally placed in the abdomen She complained of a good deal of abdominal pain (rather vague, dragging and referred to the epigastrium), and had had several attacks of vomiting Neither of these had borne any time relation to food The bowels generally were rather confined, and there had been some loss of weight She was anæmic and emaciated A plainly visible tumour occupied the entire umbilical, lower part of the epigastric and the major part of the left iliac fossa, moving with respiration It was very freely movable within the abdomen, attended with little discomfort to the patient It appeared to consist of a hard central portion, surrounded by a very soft but not exactly fluid peripheral part No pulsation was felt in the tumour The percussion note over the whole tumour was dull, otherwise the abdomen was normal Examination per vaginam Uterus normal in size, freely movable irrespective of the tumour Right ovary felt to be normal, left one could not be felt owing to the left fornix being occupied by the new growth As she was menstruating operation was delayed until May 15th A central incision about 6 inches long was made with its centre at the umbilicus The tumour presented itself at the wound directly the peritoneal cavity was opened It was possible to lift the tumour bodily out of the abdominal cavity, when it was found to be attached to the great omentum, which covered it entirely, by a flattened pedicle about 1 inch wide and several inches in length (joined on to a piece of small intestine), which carried two large arteries and two large veins which were continuous with the vessels of the great omentum This pedicle was ligatured, cut, and the tumour, which weighed 6½ lb, removed Beyond a clot of coagulated lymph in the pouch of Douglas and some engorgement of the omental vessels, the contents of the abdominal cavity seemed quite healthy, the uterus, ovaries, and uterine ligaments certainly were so The wound was closed, the peritoneum being sewn up with continuous catgut sutures and the skin wound with intermittent silkworm gut sutures The operation lasted 25 minutes Open ether was administered as the anæsthetic The patient made a speedy convalescence and was discharged one month after the operation, having gained 1 st in weight

The tumour was sharply divided, apparently into two entirely separate zones The outer cortical one had obviously undergone complete colloidal degeneration, and was soft and gelatinous in consistence The inner part or medulla of the tumour was hard, white in colour, and friable in parts The entire tumour was distinctly non vascular, except for the vessels at and in the pedicle The Clinical Research Association reported on it microscopically as follows "The tumour is composed of a connective tissue stroma with cell elements varying in different parts The general structure is that of a fibroma, undergoing degenerative changes, with large areas of necrosis. There is no evidence that it is a malignant growth"

For the notes and for kind and skilful assistance at the operation I have much pleasure in thanking our resident medical officer, Mr W F Stiell

Lincoln

CASE OF FOUR DAYS' STRANGULATED HERNIA IN A CHILD 15 DAYS OLD, RECOVERY

BY IDA M GUILLAUME, L R C P & S EDIN, L R F P S GLASG,
SENIOR HOUSE SURGEON CLAYTON HOSPITAL, WAKEFIELD

A male child aged 15 days, very emaciated and apparently dying, was admitted to Clayton Hospital under the care of Captain J W Walker, R A M C (T), senior honorary surgeon

The history obtained was that for four days the child had vomited everything given, had seemed in great pain, and had had no motion for that period in spite of aperients On admission, the vomiting was frequent and fæcal, and a left irreducible inguinal hernia was found Captain Walker operated immediately on the child. Under chloroform the sac, which was tightly strangulated, was found to contain large bowel in just good enough condition to be returned to the abdomen The testicle was found to be gangrenous, probably from pressure, and was removed The child made an uninterrupted recovery The interesting points of the case are The extreme youth of the patient, his moribund condition on admission, the length of time during which, judging by the symptoms the hernia had been strangulated and the fact that the vomiting was fæcal, and the necessary removal of the testicle In the circumstances the recovery was very satisfactory

I am indebted to Captain Walker for permission to publish the case

Wakefield

Reviews and Notices of Books.

Physiological Chemistry A Text book and Manual for Students

By ALBERT P MATHEWS, Ph D, Professor of Physiological Chemistry the University of Chicago Illustrated London Baillière, Tindall, and Cox. 1916 Pp x -1040 Price 21s net

THE author expresses the view that his book may raise in the minds of those who read it more questions than it answers The remark is not inappropriate as biochemistry is so recent a subject that to few of its fundamental questions can we give an answer A feature of the work is the citation of definite experiments rather than conclusions only, so that the reader may judge the evidence for himself

The text of this well planned volume is divided into three parts Part I deals with the chemistry of "Protoplasm and the Cell" (pp 1-265), Part II with the "Mammalian Body Considered as a Machine Its Growth, Maintenance Energy Transformation and Waste Substances" (pp 266-847) and Part III with "Practical Work and Methods" (pp 848-1012) which gives an account of the course in physiological chemistry at the University of Chicago The scheme and details are much on the lines practised in the chemical departments of physiological laboratories in this country At the end of each chapter will be found a short list of papers—most of them of recent date—bearing on the subject dealt with in that chapter A commendable feature is the introduction of the derivation of the scientific words used and their meanings In Part I the chemistry of the carbohydrates, fats and proteins, and the physical chemistry of the cell are longer than is usual Under the term "Lipins" are included fats, oils waxes, phosphatides and stereols—a heterogeneous group both physiologically and chemically—the group designated 'Lipoids' in this country Part II. opens with a short chapter on animal heat, in which ample justice is done to Lavoisier and other

early French observers In the references we miss the well known work of Charles Richet, "La Chaleur Animale" which contains a large number of original observations as well as matters of historical interest The account of the raw materials of food is short but perhaps sufficient Three chapters are given to digestion and a short one to absorption. In the account of the blood —the circulating tissue—the author adopts the view of Wooldridge, and considers the whole blood, the more liquid portions together with the corpuscles, both red and white, the platelets and the cells lining the blood vessels as consisting of a great mass of living protoplasm Indeed, the author goes so far as to state that we shall probably not go far wrong if we consider the blood plasma as a very dilute protoplasm. The processes which occur in it are probably the mirror of the processes which occur in all forms of living matter ' In the chapter on the brain and nervous system the author eulogises the work of Thudichum, ' a man of extraordinary care, accuracy, insight, and industry, whose abilities were much underrated during his life There is now, however, no question that he was far in advance of all others in this difficult field ' The absence of reserve carbohydrate food in the brain and the entire absence of neutral fat are noted as striking and interesting facts, while the medullary sheath of the nerves may be a reserve food and a nutritive material. In his speculations regarding memory the author suggests "memory hormones" Indeed, "in the spontaneous oxidation of linolenic acid phenomena closely paralleling memory and learning occur ' Muscle and connective tissues are dealt with on the usual lines and a somewhat full account is given of the cryptorrhetic tissues '—i.e , endocrine glands. A chapter is given to the excretions and one to metabolism of the body considered as a whole one to protein metabolism, and another to metabolism under various conditions, respiration and vitamines

The book as a whole is excellent in matter and agreeably written, with here and there quaint suggestions and comparisons which help to illuminate the text and suggest new ideas to the reader Many facts not recorded in Parts I and II will be found in Part III. so that in this way an overlapping is avoided The work should prove most useful to all interested in physiological chemistry

JOURNALS

The Philippine Journal of Science Vol. X. Section B *Tropical Medicine* No 6 —The opening paper of this number deals with certain observations made on the treatment of the skin lesions of leprosy with basic fuchsin by Dr Oswald E Denney, of the Culion leper colony, Philippine Islands He treated 132 cases with various external leprotic lesions including ulcers gangrene, &c. by means of cotton pledgets soaked in 1 in 1000 aqueous solution of basic fuchsin packed into the lesions and kept in place by gauze bandages A stronger solution—e.g 1 in 500—caused a burning sensation and its use was not continued. The result of the treatment was that of the 132 cases the skin lesions were healed in 67 improved in 46 no improvement was shown in 14 and 5 died In this series of cases basic fuchsin as an antiseptic proved most satisfactory, as an epithelial and granulation tissue stimulant it brought about repair in many instances which had resisted several other forms of medication. Apart from the slight burning sensation caused by the use of the stronger solutions neither discomfort nor toxic effects were noted in any case In consequence of these observations we learn that several hundreds of lepers are now being treated with this remedy daily in the Philippines and with equally good results This paper is illustrated by three plates —Another contribution deals also with the subject of leprosy and is furnished by Dr John A. Johnston of the Bacteriological Laboratory Bureau of Science Manila. The writer gives a general account of the history etiology and prevention of the disease He believes that leprosy was imported from Japan to the Philippines The first leper hospital in Manila was established by the Franciscan Order in 1633 At the present time about 3000 Filipino lepers are interned on the island of Culion The author defines leprosy as an extremely chronic, practically incurable disease —Dr Fernando Calderon writes on tropical obstetrical problems and gives some account of the many superstitions prevalent among the native Filipino population concerning pregnancy and childbirth. When an obstetrical department was established at Manila in 1907 great difficulty was experienced in inducing mothers to come to the institution to be confined, most of them preferring to be delivered in their own dirty and insanitary homes But gradually the people's confidence has been obtained, and from 1907 to 1914 some 3707 women have been attended in childbirth by the medical officers of the department, with a total of 157 deaths, or 4 per cent There were 171 abortions A number of the deaths occurred in the earlier years when many of the cases sent in had been unsuccessfully treated by native methods and arrived at the institution suffering from injuries already inflicted or in a state of exhaustion which gravely affected their chances of recovery —Dr J S Coulter contributes a study of the pathology of the gall-bladder and biliary passages in cholera. This observer during 1913 and 1914 examined post mortem 305 cases 13 of which showed signs of inflammation of the gall-bladder, or about 4 per cent. This percentage is practically the same as that recorded by Major E D W Greig, I.M S, in his reports upon the subject This number completes Volume X. of the *Journal* and accordingly a full index is appended.

The Indian Journal of Medical Research, Vol III. No 4 — This number contains 15 articles all of scientific or practical value The first is by Captain J Morison, I M.S, on the Dose of Alum for the Clarification of Water by Precipitation and gives the results of some experiments with the Poona water supply, which, it appears, is liable to considerable pollution after every rainfall in the catchment area. The best dose of alum for the perfect clarification of a soft water is obtained, it seems by adding half the equivalent weight of alum necessary to react completely with the alkalinity calculated as calcium carbonate. For a hard water the same rule holds but an equally good clarification can be obtained by the use of a smaller dose and a mechanical filter Captain Morison has devised a method of making a colorimetric estimation of, and hence a check upon, the dose of alum actually used. In this method he employs a solution of logwood, and with doses in excess or in defect he gets a gradation of shades of colour The clarification obtained by adding the optimum dose of alum is not affected by the turbidity of the water within the wide limits of turbidity found in the Poona water supply The paper is illustrated by a coloured plate.—Captain Morison in conjunction with Captain W D Keyworth, I.M.S also contributes an article on Flies and their Relation to Epidemic Diarrhœa in Poona, and in it the conclusion is arrived at that flies, whatever may happen elsewhere, in spite of their number do not contribute appreciably, if at all to the mortality in the native city of Poona or to the annual epidemic of gastro-intestinal disease in the Poona cantonment.—Mr R S Cree Brown, professor of engineering in the Poona College of Science, describes an apparatus for the purification of water for troops illustrated by diagrams, and to this Captain Morison adds a note.—In further continuation of his special studies of cholera, to which he has already devoted so much attention Major E D W Greig I.M S, gives an account of some serological investigations and classification of cholera like vibrios isolated from the water of tanks, wells ponds, and river at Calcutta.—Major S R Christophers I M S and Sub-Assistant Surgeon Rai Sahib Khazan Chand (of the Central Malaria Bureau, Kasauli) describe a tree-hole breeding anopheles from Southern India, A. (cœlodiazesis) culiciformis Cogill, with an illustrative plate.—Major W F Harvey, I M S, director of the Central Research Institute Kasauli writes on the Measurement of the Degree of Agglutination of Bacteria. He is of opinion that the degree of agglutination produced by a serum can be satisfactorily measured by using a suspension which has been standardised by weighing the bacterial substance and suspending it in unit volume of fluid. The degree of agglutination is most delicately determined by using time as a measure instead of dilution of serum. The test is greatly refined by using a heavy suspension with distilled water as menstruum and diluent and by separation of the stages of occurrence of agglutination. The modified test is said to be rapid, simple, delicate and definite —Major Harvey also contributes two other articles—namely a note on vaccination and some remarks on the investigation of an epidemic.—In a highly technical paper Major A. McKendrick, I.M.S director of the Pasteur Institute of India, discusses the Applications of the Kinetic Theory of Gases to Vital Phenomena. This paper, which is

illustrated by diagrams, was read before the Physical Section of the Indian Science Congress at Lucknow —A contribution to the study of kala azar is furnished by Lieutenant-Colonel J W Cornwall, I M S, in association with Military Assistant Surgeon H M La Frenais, illustrated by several plates These experts found that Leishmania flagellates can survive in the bug for at least 29 days, and they suggest the possibility that a hitherto undescribed phase of the parasite of kala azar may occur in the bug's stomach They found, however, little to support the view that this disease is transmitted directly by the bug to man, but the subject is being further investigated —Colonel Cornwall, in conjunction with Sub-Assistant Surgeon S Ramasamy Aiyar, of the Pasteur Institute of Southern India, discusses the subject of Arneth's index in laboratory rabies —Dr Vishnu T Korke writes on a nosema (Nosema pulicis, N S) parasitic in the dog flea (Ctenocephalus felis), illustrated by a plate —A contribution to the study of hæmoprotozoa in Portuguese India is supplied jointly by Captain Froilano de Mello, professor at the Medical College of Nova Goa, and Dr L J Braz de Sa, assistant in the bacteriological laboratory at Nova Goa This paper is illustrated by a coloured plate — A report is published from the Kitchener Indian Hospital at Brighton on Pyorrhœa Alveolaris and Associated Conditions among Indians and Europeans In it an interesting account is given of the inquiry carried out by a committee of five members, four of whom were officers of the Indian Medical Service, with whom was associated Mr H L Dorrell, dental surgeon to the hospital —The last contribution is furnished by two civil assistant surgeons—namely, M Kesava Pai, M D, and S Rama Krishnan, L M S —on the Differentiation of Dysentery Bacilli by their Agglutination Reactions —This number completes the third volume of the *Journal*, and accordingly an index of authors and another of subjects is appended

NATIONAL INSURANCE ACT

A Panel Practitioner and Service Outside his Area

A SUCCESSFUL claim for fees was made in the Liverpool county court recently in somewhat unusual circumstances Mr M R Maher sued the widow and administratrix of the late Mr S J Bland for £13 3*s* 6*d*, on account of medical attendance upon her in 1913 The services claimed for were rendered before the husband died, and the debt was disputed on the ground that as Mr Maher was Mrs Bland's panel doctor he could not charge for attending her It was also denied that any special arrangement for his attendance, as alleged by him, had ever been made The plaintiff's case, however was that after he had been in attendance on Mrs Bland it was found that a serious operation was necessary, and she was removed to a nursing home for that purpose, the proposal that she should go into a public hospital at Liverpool being rejected In these circumstances Mr Maher was specially requested by the husband to attend her at the nursing home, and he accordingly did so, three operations being performed on different dates The nursing home was at Waterloo, at some distance from the plaintiff's residence and practice, and he was particularly told by the husband to spare no expense This, as has been stated above was denied by witnesses on behalf of the defendant His honour Judge Thomas, however, held that it was unreasonable to suppose that Mr Maher would undertake to attend Mrs Bland at Waterloo unless he were to be paid for going so far from home He considered that the plaintiff was entitled to charge for his visits to Waterloo but not for attendance before the patient went there, and that he was not entitled to charge attendance fees at Waterloo as well as fees for the operations He gave judgment for the plaintiff for £9 0*s* 6*d* with costs

Panel Practitioners and the Military Service Act in London

At a meeting of the Local Medical and Panel Committees for London held on July 18th a report was considered from the committee appointed to confer with the Insurance Committee on the position of panel practitioners under the provisions of the Military Service Act, 1916 The attention of the Committee had been specially directed to the list of practitioners liable to be selected for commissions in the Royal Army Medical Corps on August 7th The majority of these it was found, would be able to make satisfactory arrangements for their patients if it should become necessary for them to do so, but in other instances, reduced eventually to 36 names, considerable difficulty would be experienced. These 36 names, together with the reasons why they should be retained in civil practice, have accordingly been forwarded to the Commissioners, who will make the necessary representations to the military authorities The chief point to which the Committee directed its attention was the difficulty, varying according to the district, of obtaining full time deputies or of securing the whole-hearted coöperation of non panel practitioners in undertaking the obligations of panel practitioners called up for service Special consideration should, the Committee thinks, be given to areas in which in normal times all or most of the practitioners are on the panel, these being as a rule densely populated districts A substantial number of practitioners from such areas are already serving, and further depletion of the ranks of panel practitioners must seriously affect the efficiency of the medical service provided

Panel Practitioners and the Report of the Royal Commission on Venereal Diseases

The report of the special subcommittee appointed to deal with the above report was also in the agenda of the recent meeting of the Local Medical and Panel Committees for London Many of the points which engaged the subcommittee's consideration naturally affect other practitioners equally with those engaged in panel practice, and the importance of the subject dealt with claims the attention of all The difficulties to which the report in question draws particular attention are those arising out of the Commission's recommendation (9) that institutional treatment should, as far as possible, be provided at general hospitals It is feared that patients will select a hospital for treatment in preference to going to their own medical attendants or to private practitioners, in order to secure themselves from the observation of their friends Recommendation (10) runs 'Treatment in any institution included in a local authority's scheme should be free to all. There should be no refusal to treat a patient who is unwilling to go to his own doctor" In this connexion it is pointed out in the subcommittee's report that two points will have to be weighed carefully First, the ethical question of how far a practitioner, whether on the staff of an institution (and so not pecuniarily interested) or not should undertake the treatment of another practitioner's patient before such patient has given notice to his original attendant Secondly, the question of how far the treatment of a patient in a hospital, and without payment, is to be justified when the patient can secure for himself adequate treatment from a private practitioner Recommendation (12) again arises out of the desire that patients suffering from venereal diseases should be able to obtain treatment in hospitals, with the apparent implication that venereal diseases are to be placed upon a different basis from other illness This recommendation runs "Special arrangements such as evening clinics, should be made for the treatment of out-patients at hours convenient to the working classes" It is pointed out here that evening clinics at general hospitals cannot fail to be regarded with anxiety by private practitioners in the neighbourhood These clinics also, if open only to venereal cases will mark out as such those who seek treatment at them, and surreptitious attendance will be necessary on the part of patients who wish their friends not to know of their condition If, on the other hand evening clinics are opened to include all kinds of disease, the competition with practitioners in the neighbourhood will become even more severe and the abuse of hospital treatment more frequent The report suggests that the chief value of special hospital clinics will be in the provision of opportunities for medical practitioners to bring or send difficult cases for consultative advice and that in fixing the time there should be consideration for the convenience of the practitioner should he desire to attend

FREE TRAINING TO BELGIAN DOCTORS —We understand from the Dean of the University of Liverpool that instruction in tropical medicine is being offered free of charge to Belgian doctors in this country by the Liverpool School of Tropical Medicine

THE MEDICAL TREATMENT OF CANCER

Revue Moderne de Medecine et de Chirurgie.

As a result of over ten years' research work on Cancer Dr Gaube du Gers produced a new Colloidal Copper Hydroxide which has given remarkable results in *arresting the progress of the disease*, loss of pain, and great improvement in the general condition of the patient Locally, these results are manifested by a transformation of the lesions, leading to their cicatrisation, in a greater or less period, to the diminution in their size, and finally to the disappearance of the diseased glands Dr Gaube du Gers' Cuprase is employed in subcutaneous injections made *very slowly* in the gluteal region, with a needle of about 0 03 cm. at the rate of an ampoule every four days which should be continued in the same manner as long as necessary These punctures are not generally painful and do not produce any local reaction Cuprase *is not toxic*

Dr CLERICI has published a résumé of over sixty clinical histories from various Italian doctors and concludes as follows "To sum up, Cuprase has given positive results in about 94 % of the cases in which it has been employed for a sufficiently long period, and some brilliant results in about 20 % of these cases. Henceforth, it may be affirmed that among the internal remedies for cancer Cuprase is the one which has produced the most successful results and can under certain circumstances compete with surgical methods, even so far as the rapidity of their results are concerned." *It should be remarked that all, or nearly all, the observations refer to inoperable cases in which the prognosis was unfavourable at an early date* Dr MANCINI PAUL, physician to the hospitals at Rome, says "In the present state of anti cancerous chemotherapy, there is no product, both from the theoretical point of view and from that of positive results, which is superior to Cuprase"

Extract from Proceedings of the Royal Society of Medicine, February, 1913—

Dr GEORGE HERSCHELL During the last year a considerable amount of work has been done in the treatment of cancer by colloid copper, and I do not think it should be passed over in this discussion without careful consideration I am able to find histories of fifty three cases reported in the French Medical Press, in which a cure was claimed in fourteen cases (26 7 %) and improvement in thirty six cases (57 9 %) In three cases no good appears to have resulted. Making every reservation for unreported cases in which success was not obtained, I think that we must admit that some good results have followed the use of colloid copper in cancer unless we are prepared to assert that all the medical men who have reported these cases are engaged in a gigantic conspiracy for their own ends to delude the medical public of all nations In some of the reported cases the diagnosis is, I admit, open to question For instance, one case in which a cure followed the treatment, was obviously one of duodenal ulcer and not cancer of the stomach But in others, in which equally good results have been reported, the diagnosis was confirmed by men of the very highest standing

There are two kinds of colloid copper The electrically prepared colloid which is manufactured by passing an electric arc through copper plates immersed in water and the chemical colloid which results from the slow reduction of copper in the presence of albumosic acid Theoretically, the electric colloid should prove most efficacious as the particles of copper are reduced to the finest state of subdivision Clinically however the chemical colloid appears to give the best results In the following cases chemically prepared colloid was used Experimentally, it has been proved (1) That particles of colloid copper can be demonstrated in the granulations of cancerous growths after two or three injections of the colloid, and clinically (2) There is invariably great relief from pain, (3) Appetite and strength return and the patient puts on flesh, (4) There is in many cases a diminution in the size of the tumour, (5) The injections are absolutely non toxic, although in many cases an inflammatory reaction is manifested in the cancerous growths

As regards my own personal experience in the use of this method of treatment in addition to my own cases, I have had an opportunity of observing the effects in the practice of some of my medical friends, and in nearly all cases the progress of the disease appeared to be arrested

OBSERVATIONS.

SUPERFICIAL CANCERS

Skin, Lips, Mouth, Pharynx, Tonsils, Tongue

Rodent Epithelioma of the External Canthus of the Left Eye with Destruction of the Eyelid Dr Arnaldo Taparelli, Assistant at the Royal Clinic for Skin Diseases, Modena

Cancer of the Lachrymal Sac, Relapsed Dr Nicolo Lavagrinese, Osternino (Bari)

Ulcerous Cancroid of the Leg Dr Raymond Laroche, licènciè ès lettres, ex House Surgeon of the Hôpital de Dijon, Château Landon (Seine-et-Marne)

Cancer of the Floor of the Mouth and Right Tonsil Dr Colliere, Saint Amans-des-Côts (Aveyron)

Inoperable Glandular Sarcoma of the Tonsil, successfully treated by Cuprase and X Rays Drs Wolze and Alexander Pagenstecher of Brunswick (in *Münchener Medizinische Wochenschrift*, No 19, May, 1913)

Tonsillar Neoplasm treated by Cuprase Dr Caillebar, Sandemagnan (Gers)

Epithelioma of the Larynx and Mouth Dr Constant Ferrand, Paris

Inoperable Epithelioma of the Pharynx and Fauces Drs Garbarimi of Parma and A. Tomasinelli of Rocabrana

Cancer of the Tongue and Fauces Dr Bonetti Giacomo, Physician at the Sanitary Department Nuvolera Brescia

CANCERS OF THE DIGESTIVE TRACT

Stomach, Intestines, Rectum

Cancer of the Stomach treated by Dr Gaube's Cuprase Dr B Caillebar, Sandemagnan (Gers)

Cancer of the Stomach Dr Amselle, formerly House Surgeon, Hôpitaux de Nancy, Epernay

Cancer of the Stomach, Disappearance of the Gastric Tumour Dr George Herschell, M D Lond, Professor Fellow, Royal Society of Medicine, Chief Physician, the London Hospitals (Extract from the *Proceedings of the Royal Society of Medicine*, London January, 1913)

Cancer of the Stomach Dr George Herschell, M D Lond (see preceding paragraph)

Cancer of the Stomach Dr George Herschell, M D Lond (see above)

Cancer of the Stomach Dr George Herschell, M D Lond (see above)

Cancer of the Pylorus Dr Rocher, Chief Physician, Hôpital de Gabarret (Landes)

Ulcer of the Stomach with Neoplastic Evolution. Dr Jacques Besson, Chalon sur Saône

Neoplasm of the Pyloric Region Dr Milanof, Champignelles (Yonne)

Cancer of the Stomach Dr Antonio R Gomez, Los Angeles (California)

Cancer of the Stomach Dr Antonio R Gomez, Los Angeles (California)

Cancer of the Stomach Dr G Bossis, Nantes

Cancer of the Stomach Dr G Vivien Issigeac (Dordogne)

Epithelioma of the Intestine. Dr G Bossis, Nantes

Tumour of the Ileocecal Region Cure Dr Chevassu Perigny, Orsennes (Indre)

Generalised Abdominal Neoplasm of Intestinal Origin Dr Jacques Besson, Chalon sur Saône

Cancer of the Rectum. Dr Cesare Valisi, Rimini

Cancer of the Rectum Dr Butruille, Mouvaux

Colloid Cancer of the Ampulla and Rectum Dr G Lebarbier, formerly Assistant Chief of Laboratory at the Faculty of Medicine, Falaise.

Cancer of the Rectum Dr H at B (Pas de Calais)

[Continued on p 24

THE MEDICAL TREATMENT OF CANCER

—(Continued)

OBSERVATIONS—(continued)

CANCERS OF THE BREAST

Recurrence of Cancer of the Breast after Operation, Treatment by Cuprase, Cure Dr Chevassu Périgny, Orsennes (Indre)

Cancer of the Breast Dr Haring, Toulouse

Epithelioma of the Left Breast Dr Nicolo Lagravinese, Cisternino (Bari)

Double Scirrhus of the Breasts and Neoplasm of the Ovary with Ascites Dr P Vignard, Surgeon of the Hôpitaux de Lyon, Hospice de la Charité

Cancer of the Breast, Diffuse Cancerous Disease Dr Costanzo Visetti, Physician, Hospice Mauriziano, Aoste

Cancer of the Right Breast Dr Dieudonné, Liége (Belgique)

Epithelioma of the Breast Dr José Giminez of Guillena, Province of Seville (Spain)

Cancer of the Breast, Two Relapses Dr S of S

Cancer of the Breast, Two Operations, Relapse Dr Marcelin, Faverney (Haute Saône)

Cancer of the Left Breast with Ulceration, Tumour, Cure Dr Timmerman, Paris Plage.

Ulcerated Cancer of the Breast Dr Usquin, Douzy (Nièvre).

CANCERS OF THE UTERUS

Ulcerated Cancer of the Cervix Uteri Dr Coutouzis, Smyrna (Asia Minor)

Cancer of the Uterus Dr Jacques Besson, Chalon sur Saône

Cancer of the Uterus Dr Groc, Saint-Symphorien

Cancer of the Cervix Uteri, Cure Dr Enrico Guicciardi, Modena

Cancer of the Uterus Dr Antonio R Gomez, Los Angeles, California (U S A)

Cancer of the Uterus Dr Antonio R Gomez, Los Angeles, California (U S A)

Ulcerated Epithelioma of the Cervix with Infiltration of the Uterus, Cure Dr Giuseppe Cortese Nicòsia

Cancer of the Prostate Extending to the Bladder, treated by Dr Gaube's Cuprase Dr Henri Maringer, formerly Assistant to the Clinic for Urinary Diseases at Hôpital Necker

Cancer of the Upper Biliary Ducts with Bilio-Septic Fever, treated by Cuprase, Cure Dr G Chevassu Périgny, Orsennes (Indre)

CONCLUSIONS

The action of Cuprase is manifested by *local and general phenomena*

A —LOCAL PHENOMENA

(*a*) The *ulcers* are cleansed, become roseate and pointed, lose their bad odour, dry up, are healed from the circumference towards the centre The cicatrix is white, supple, and painless

(*b*) The *affected glands* cease to enlarge and remain in the same state or retrogress until they completely disappear

(*c*) The *tumours* become painful at first under the influence of the remedy (characteristic of specificity), this pain is special, characteristic, unusual, remarkable in nearly all the patients Afterwards, either they no longer increase in size, and then present the characteristics of benign tumours, or else they begin to retrogress, retrogression of possibly the third the half, two-thirds, or even the whole In the last condition nothing remains to show that the organism has ever been diseased

B —GENERAL PHENOMENA

The following facts may be considered as being practically established —

(*a*) The *return of the appetite*, which may be insatiable, and the steady *increase in weight*, often very great

(*b*) The *return of the colour and strength*, the capacity for life's occupations the patients 'obtain a new lease of life."

(*c*) The *disappearance of the pain*. Cuprase exerts a powerful analgesic action and under its influence the violent pains, which had resisted the effect of large doses of morphine or which the morphine had only relieved in a very imperfect manner, have rapidly disappeared, never again to return

(*d*) *Return of sleep* This as a consequence of the disappearance of the pain

12 *Hæmostatic action* This action mostly rapid and manifesting itself from the first injection, even when the classical methods have failed

13 *Action upon the blood* Under the influence of Cuprase the number of red corpuscles is greatly increased, as well as their richness in hæmoglobin

CUPRASE

CUPRASE is a *colloidal* copper hydroxide, which is obtained chemically, by the reduction of salts of copper in the presence of albumosic acid

The colloidal copper should be kept in yellow glass ampoules sheltered from the light, the ampoules which we use have a capacity of 5 c c, each ampoule contains 121 hundredths of a milligramme—viz, 0 00121 gm. of pure copper The colloidal copper can be directly injected, *it is not toxic*, the injections are made subcutaneously or intramuscularly in the lumbar region or lower They are painless, but on account of the viscosity of the liquid should be performed slowly They are not generally followed by any reaction, either local or general, sometimes when a drop of blood appears on the skin after the needle is withdrawn, in the 24 hours following the injection a painless erythema followed by slight itching is observed above and around the puncture, this accident, which is insignificant may easily be avoided by puncturing with the needle only before injection, if no blood appears on the needle socket the injection may be proceeded with safely The injections are renewed every four days at the commencement of the treatment, the intervals can afterwards be increased or continued in the same manner, according to the tolerance of the patient, or even doubled if the condition of the patient requires it, but not more than one ampoule should be injected in the same place

The curative action of the colloid would seem to be slower on the operable and recurrent cancers than on the inoperable. Nevertheless, the curative action of the colloid is as marked on the recurrent cancers, but is slower on account of the extent of the disease which is greater in surface and in depth Every cancer left to itself ends in a rodent ulcer Under the influence of the colloid this ulcer gradually shrinks from its circumference towards the centre in proportion as the cancerous tissue surrounding the ulcer disappears, the ulcer dries up in the centre, but it is not healed until the peri cancerous and cancerous tissue itself has disappeared The secondary infections which so often accompany the cancerous ulcers are not affected, or very little so, by the colloid, but I have observed that from the commencement of the treatment of the ulcerated cancer by the colloid the cases of secondary infections became more and more rare

The intensity of the destructive action of the colloidal copper on non ulcerated cancer appears to be in direct proportion to the rapidity of its development—that is to say, the colloidal copper is more effective in its action upon cancers with rapid development than upon those of slow development or rather, acute cancers heal more quickly than chronic ones, if one may so express it

CUPRASE is put up in boxes containing 8 ampoules of 5 c c each

Further Literature on application to—

THE ANGLO FRENCH DRUG CO, LTD (late M BRESILLON & Co), GAMAGE BUILDINGS HOLBORN, LONDON, E.C.

Telegrams: "AMPSALVAS LONDON" Telephone: HOLBORN 1311

THE LANCET.

LONDON SATURDAY, JULY 29 1916

Science and the Drink Question

THE neglect of science by the State is one of the commonplaces of current thought It is said, and in too many instances no doubt with perfect truth, that in this country the governing classes, or at all events our legislators and politicians, fail very generally to recognise the importance of science in modern life, and that they are unable or unwilling to appreciate at its proper value the assistance which the scientifically trained intelligence can give in the organisation of society and in the solution of social problems Though in the main this indictment is quite true, it is certain that the blame lies not wholly with those to whom such censures are usually addressed, but that, on the contrary, some part of the responsibility should be imputed to the indifference of scientific critics to many questions of practical social interest—an indifference which prevents them from furnishing, as it should be their privilege and duty to furnish, the positive data needed for the passing of adequate measures of reform That this has been the case in the particular instance of the drink problem would appear to be the moral enforced in the extremely interesting address recently delivered before the Society for the Study of Inebriety by the chairman of the Central Control Board (Liquor Traffic)

Lord D'ABERNON, in commenting on the relatively small results that have hitherto attended the efforts of legislators and reformers to abate the social evils of alcoholism, indicated as one of the chief causes of failure the absence of exact data regarding the fundamental factors of the problems of inebriety As he pointed out, certain aspects of the physiological action of alcohol have been the object of most careful and exhaustive investigation The problem of its food value has been settled, so far, at all events, as it can be settled in the present state of physiological knowledge Much valuable work has been done with regard to the effect of alcoholic beverages on the activity of the digestive ferments, and numerous and important researches have been carried out to determine the influence of alcohol on the output of muscular energy But when we come to consider its inebriating action and to inquire into the conditions which underlie the excessive use of alcohol and create the social evils of intemperance—we pass in a depressing way out of the region of scientific evidence To illustrate this point Lord D'ABERNON cited a formidable list of lacunæ in our knowledge, many of these lacunæ referring, it may be noted, to matters which are of obvious practical importance in the devising of measures for the arrest of intemperance Thus, he observed, we have no reliable test of drunkenness, we have no positive data as to the effect of alcohol at various strengths and various degrees of dilution, we have no evidence regarding differences in the inebriating action of the several alcoholic beverages, no evidence as to whether alcoholic excess may not be related in certain cases to an abnormal need of fluid, quite irrespective of its alcoholic content It was Lord D'ABERNON'S complaint that on these and many other points his demands for information remained unanswered, there were statements of opinion, and very positive and dogmatic statements at that, but there were no data that could possibly be regarded as scientifically sound At first sight this seems a startling and even an improbable assertion, but further scrutiny of the facts compels the admission, humiliating though it is, that the complaint is completely justified The scientific literature of "the drink question," or, to speak more accurately, the literature which purports to be scientific, has unfortunately taken little account of such matters as we have referred to, for the most part it does not concern itself at all with facts of observation or experiment, and its spirit and method are rarely the spirit and method of positive science The inebriety which it discusses, and discusses assuredly with much dialectical skill and ingenuity, is not the inebriety of common everyday experience—it is a product of deduction working on the hypothesis, assumed as axiomatically true, that the habit of alcoholic excess is always and everywhere the result of an innate specific craving for the sensations of drunkenness To the practical inquirer, seeking for definite evidence on which to base effective remedial measures, this *a priori* speculation can obviously be of little use, and, as the results of legislative experiments in this matter should warn us, the attempt to apply conclusions, based on these very insecure premises, to the solution of the problems of alcoholism in any of its aspects, is not likely to be attended by conspicuous success Fortunately we may feel certain that errors of this sort will not be repeated, the spirit which has been shown in the policy of the Central Control Board under the enlightened administration of Lord D'ABERNON gives full assurance that future legislation with regard to this question will be guided by principles of a less speculative nature and by knowledge more nearly connected with the real facts of the general issues We have, indeed, already concrete evidence of the influence of this new spirit in the cautious and reasoned measures adopted by the Control Board with a view to decreasing chronic alcoholism As Lord D'ABERNON points out, it has been established on definite evidence that the chronic poisoning, to which the more serious evils of intemperance are mainly due, is largely the result of the use of alcohol at frequent intervals throughout the working day, and it has, therefore, been one of the cardinal principles of the Control Board's policy to frame its restriction orders so as to break down this habit and tradition of industrial drinking How has this policy worked? For

statistical purposes the most definite and reliable index of chronic alcoholism which we possess is the incidence of delirium tremens, and, since a large and stable proportion of all cases of the disease were under treatment in Poor law infirmaries and prisons, the records obtainable from these two classes of institutions should give clear evidence of the results of the restriction orders as regards the prevalence of chronic intoxication And the evidence, on the figures quoted by Lord D'ABERNON, is certainly impressive As a typical instance he takes the East London and Woolwich area, in this district the number of cases of delirium tremens treated in the infirmaries during the five months following the introduction of restriction orders amounted to 59, as compared with 109 in the corresponding period of 1915 and with 87 in 1914—and this reduction was even more marked and more regular in the females than in males, a strong suggestion that it is not to be attributed to the withdrawal from the civil population of men of military age This result, and it is paralleled in other districts, is a very striking illustration of the degree in which alcoholism can be influenced by legislative measures, if only these measures are based on a foundation of real knowledge

With such encouraging omens as we may find in the spirit and in the matter of Lord D ABERNON'S address, we may reasonably hope that the biological factors which are fundamental in the problems of alcoholism will be the object of more serious and thorough observation than has been devoted to them in the past In regard to this question in a very special degree the war has had an excellent educative effect on public opinion, and it may safely be asserted that there is at the present moment a general readiness, such as has never prevailed before, to acquiesce in any reasonable scheme for thorough and effective treatment If this opportunity is to be fully utilised, and if the energy and goodwill that are now available for the work of reform are not to be frittered away in confused and futile effort, it is vitally necessary that the way for successful action shall be immediately prepared by a scientific and impartial study of the root facts

Heat-Stroke

THE European in the tropics, especially if newly arrived there, is liable to suffer in two ways from the climatic conditions of the hot season In the one case, heat stroke, the temperature of the body rises and there are signs of congestion and nervous irritation, in the other, heat exhaustion, there are pallor, fainting, and collapse Heat-stroke is the commoner form Although sometimes caused by the direct rays of the sun, especially where the new comer is unsuitably clad, it is much more frequently produced by the combination of high temperature and excessive moisture in a confined space The risk is not great in the ordinary circumstances of life in the tropics, for most people are careful to protect themselves when out of doors and to adopt special arrangements for cooling and keeping in motion the air of their dwellings, and this motion is a potent factor in removing heat from the body The liability to heat stroke is very much greater in those who are in an exhausted state, whether due to overwork, fatigue, or illness, and such subjects are readily affected by a short exposure to unfavourable conditions Even strong and healthy people succumb if subjected for a considerable time to air which is both hot and stagnant, especially if it is also impure and moist The conditions met with in the engine rooms of vessels passing through the Red Sea at certain seasons of the year exactly exemplify the most dangerous air, and these conditions require the most careful attention to ventilation and to the escape of steam if tragedy is to be avoided. It has been experimentally shown by Dr J S HALDANE that if the wet bulb temperature exceeds 89°F in still air the body temperature begins to rise, and that the same effect is produced in moving air when the wet bulb reading approaches the body temperature

Attention has been called to these conditions by the lamentable death, attributed to heat-stroke, of Sir VICTOR HORSLEY in Mesopotamia, and by the disaster to a trainload of soldiers in India. It appears from the official account that some Territorial drafts, amounting to 1013 men with 13 officers, arrived at Karachi in the first week of June and were there entrained for Lahore and Rawal Pindi in third class carriages The train carried three medical officers, had two second class carriages fitted up as hospitals with fans, and was supplied with a coffee shop and a good quantity of ice Thirty men were seated in carriages designed to accommodate 36, and 60 men in others which had a normal capacity of 72 Notwithstanding these arrangements, there occurred on the journey 136 cases of heat stroke, with 15 deaths It is not stated whether the medical officers, like the soldiers they were accompanying, were new to the country, and had no special experience of the climatic conditions to which the men under their charge were likely to be subjected Fortunately, at Lahore and Rawal Pindi a large number of medical men were available experienced in this tropical affection, and it may probably be attributed to this cause, and to the fact that ice had been provided on the way at different stations, that out of the 104 cases in the later stages of the journey there were only 3 deaths, against 32 cases with 12 deaths in the earlier Certain incidents connected with the unfortunate journey are difficult to understand Anyone familiar with the railway journey across the plains of India in May or June knows the distressing conditions under which it is made, even in first class carriages, accommodating only four persons in each, supplied with ample quantities of ice and iced water, and having additional cooling and freshening of the air provided by fans and tatties Even so the ordeal may be grave for a European In moving European troops at this season special precautions ought to be taken to protect the roofs of carriages from the effects of direct heat of the sun, and to avoid overcrowding

Science and experience can suggest much to lessen the heat inside the carriages themselves Such would be the normal preparation in India for the transport of troops under the supervision of men familiar with the conditions to be incurred In cool weather 30 occupants to a third class carriage might not give rise to discomfort, but under conditions in which every soldier is giving off aqueous vapour at a rate of some 20 cubic feet per hour, while the air is stagnant, the wet bulb thermometer would easily rise to a dangerous point The natives of India, who normally travel in third class carriages, are accustomed to the heat and wear fewer and lighter clothes, the fact that natives might with impunity have made the arduous transit cannot be used as an argument when we are considering the case of British soldiers in uniform The unusual circumstances of this journey have been marked by the fact that on July 7th a senior officer from Army Headquarters, in company with Lieutenant-Colonel W MOLESWORTH, I.M S, left Simla for Karachi with instructions to visit all the stations along the line where fatalities had occurred, and to submit a full report after their return to Simla.

The amount of the mischief done may not be measured by the deaths alone, inasmuch as many of the soldiers attacked will be likely to suffer from a more or less permanent disability It is clear that the circumstances should be made known without reserve We are glad to learn that Mr AUSTEN CHAMBERLAIN, Secretary of State for India, has directed the Government of India, that having fixed the responsibility for the tragedy, they are to hold the person or persons responsible to strict account

Annotations.

Ne quid nimis

SIR WILLIAM RAMSAY

PHYSICAL as well as chemical science has sustained a great loss in the death of Sir William Ramsay, which took place on July 23rd, in his 64th year His career in the field of research was brilliant, if he is remembered mostly for his extraordinary attention to details and for a refinement of manipulative skill and attack which led to his important discoveries, it will also be seen that those discoveries were of vast significance All along the conviction that there was value in ascertaining the nature of traces or residues was his guiding principle, and it led him aright When we reflect that Sir William Ramsay with Lord Rayleigh made the simple observation independently that the nitrogen of the air was slightly heavier than the nitrogen obtained by chemical means, which ultimately led to the discovery of argon and its congeners krypton, neon, and xenon we must agree as to the importance of examining comparatively minute quantities In reality these investigators were but pursuing the sequence of the classic experiment of Cavendish who found that when air was sparked there was always a small residue of gas which refused to disappear in the electric discharge in the presence of oxygen—refused in fact, to be burnt This residue contained the inert gases which Sir William Ramsay separated and identified The importance of the infinitesimal was being exemplified at the same time by the discovery of radium in pitch blende by Madame Curie She worked on tons of material in order to recover a grain or two of the substance radium, the isolation of which has completely revolutionised our ideas of energy and matter These investigations were being conducted simultaneously and their concurrence led to very remarkable developments Sir William Ramsay was not long in realising that the study of radium and its behaviour was likely to lead to further light being thrown on the nature of things, and to him largely we owe the conception of the degradation of elements He demonstrated how radium's instability meant that it was constantly disappearing as such and appearing again in new elemental form He mapped out the series of elements which succeeded the degradation of radium, and amongst others he proved the formation of helium This was curious, as Sir William Ramsay was the discoverer of terrestrial helium He had found it amongst the gases given off from a mineral called cleveite, and he showed that it exhibited the same powerful yellow line in the spectrum corresponding exactly with the line hitherto only known to exist in the solar spectrum Sir William Ramsay now became absorbed in the study of disintegration and many of his colleagues think that the intense enthusiasm which he manifested towards this work undermined his physical strength He may well be forgiven for his ardent attachment to these questions, for their investigation gave promise of establishing once and for all that the elements were merely modifications of one great family substance, and that, given the means, one element could be transmuted into another As a matter of fact, the degradation of radium itself had already made out a case, but Sir William Ramsay evinced a great desire to show that the same phenomenon could be demonstrated with more familiar things He reported once that in working with a copper salt under the stimulus of radium traces of lithium had appeared The matter was never cleared up and no further contribution by way of confirmation or disproof was forthcoming, but in 1913 an announcement was made by two investigators, who were working quite independently of each other, that they had achieved clearly and definitely an example of the transmutation of elements Hydrogen gas was introduced in small quantity into an X ray bulb and a rapid and continuous discharge was allowed to pass when both helium and neon, it was stated, made their appearance The result, though again not since confirmed, was received with the greatest interest by Sir William Ramsay, who expressed his gratification that the theory of transmutation no longer rested for support on his word His work on radio activity received a medical application He undertook an exhaustive investigation into the properties of Bath waters, and successfully demonstrated that the one thing which distinguished these waters in particular was their remarkable radio active power He could attach no therapeutic significance to the mere mineral constituents of the waters, which were much the same in kind and degree as those found in the London drinking supply Later he pointed out in a paper contributed to our columns that the application of radium for therapeutic purposes was more effective in the shape of emanation or of niton than

as a salt of radium, on the ground that in the latter case there is considerable risk of loss of the precious radium He described in this paper the introduction of niton into appropriate forms of apparatus—e g, tubes, bulbs, and hollow flat discs—suitable for application. We have said enough to show Sir William Ramsay's great endowments and wide range of scientific equipment He possessed a charming personality, and was extremely popular at University College, London, where he occupied the chair of chemistry from 1887 until 1913, and those who attended his lectures will ever remember his wonderfully lucid treatment of his subject He had remarkable attainments in other directions, for he could deliver a lecture to either a German or French audience fluently in their own tongue, he was a gifted exponent of music and played both the piano and violin in delightful style His death, at a comparatively early age, is a great loss both to science and society

THE WAR AND ITS EFFECT UPON THE YOUNG

A CIRCULAR letter sent by the Home Office to the clerks to the justices throughout the country draws attention to a substantial increase in juvenile crime as shown by the police statistics of 17 of our largest towns In the areas selected the total number of children and young persons charged with punishable offences in the three months December–February, 1914–15, was 2686, and in the same period, 1915–16, was 3596, an increase being noted in all the towns consulted Moreover, and this is perhaps the most serious feature of the case, although there have been more charges of assault, malicious damage, gaming, and offences against the Education Act, the increased number of juvenile offenders is mainly caused by a rise of nearly 50 per cent in charges of larceny It would indeed be deplorable if the standard of honesty among the young were to be seriously and permanently lowered at a time when their fathers and their brothers, many of the latter being little older than the culprits, are setting an example of bravery, self denial, and self sacrifice on the field of battle In the circumstances, the Home Office rightly urges magistrates to do what they can to prevent adding to the criminal classes any who can be saved by the exercise of the powers of the bench under the Probation of Offenders Act, and reminds those who sit in judgment upon the young that parents may be made pecuniarily liable unless it is clear that no neglect on their part has conduced to the commission of the offence Other matters of detail are also touched upon, such as the powers of magistrates to fine for carrying a gun without a licence boys who play with air guns, and to check the use of automatic gaming machines Observations are also made as to the influence of cinema shows—indeed, the whole question of these entertainments is under consideration. It is clear that the loss of the restraining influence of parents who are fighting for their country or closely engaged in factories producing munitions is being felt to an appreciable extent in populous centres, so that in various respects we must hold the war responsible for lack of discipline among the younger members of the community This is a position which it will require much energy and tact to combat The circular letter of the Home Office suggests the employment of an increased number of female probation officers, but a doubt may be expressed as to whether women experienced in social work and ready to undertake new functions may not at the present juncture be almost as difficult to discover as men. Again, reference is made to the breaking up of boys' clubs through the lack of managing staffs as being responsible for much mischief Here again women and others, more or less new to the work, might help if they could be found disengaged It will not be easy to obtain them, but our readers will do the country a service if they can recruit unoccupied persons of the right sort It is too much to say that all of those whose energy, goodwill, and opportunity enable them to "do something" for their country's sake are doing it already There are unoccupied hands and brains among us, and the time for which their work will be needed is short For in the near future we pin our faith upon the young soldiers who will return to set an example and to take up the good work They will find their influence doubled by the hero worship with which they will be regarded, and their increased knowledge of the benefits derived from honourable discipline will stand them in good stead

AN IDEAL MECHANICAL HAND

WE learn from the Société Nationale de Chirurgie de Paris that an anonymous donor has offered to the society a prize of 50,000 francs, to be handed over to the maker of the mechanical apparatus which best supplies the place of the hand The conditions laid down are as follows "All competitors must belong to allied or neutral nations They are to present to the society mutilated men who have been using their apparatus for at least six months The Société de Chirurgie will experiment with each apparatus on mutilated men for the length of time it thinks fit The apparatus rewarded is to remain the property of its inventor The competition will be closed two years after the end of the war" MM Faure, Kirmisson, Quénu, Rieffel, and Rochard form the committee selected by the society to deal with the competition, and those wishing to compete should send the apparatus and description to the Secretary General of the Société Nationale de Chirurgie, 12, Rue de Seine, Paris

ANTHRAX AND POSSIBLE PRECAUTIONS

AT a recent inquest held by Dr F J Waldo, coroner of Southwark, upon the body of a waterside labourer it was proved that the man had died of cutaneous anthrax contracted in the course of his work in a warehouse where wool from Persia and China was handled The evidence also showed that on the wool floor where the deceased worked, as at the wharf with which the warehouse was connected, there was general ignorance among those employed both with regard to the possibility of infection with anthrax from the wool and to the nature of the disease Dr Waldo, with invariable readiness to seize the opportunity for making a useful recommendation, explained the matter to the jury, with the aid of the facts before them and of the explanations given by the expert witnesses called As a result the following rider was appended to the verdict —

We (the jury) think that the provisions of the Factory and Workshop Acts should be extended—or enlarged—so as to apply to the wharves and warehouses and other places where foreign or suspect wool, hides, skins horse and goat hair, pigs' bristles, and other material liable to be infected with anthrax are handled and dealt with, and that the excellent preventive regulations including placards in picture form—issued by the Home Office—should be compulsorily exhibited

and enforced for the information and well being of workers in such wharves and warehouses

Nearly two years ago, in December, 1914, an inquest was held at Southwark by Dr Waldo on the body of a butcher who had died from cutaneous anthrax in Guy's Hospital, when the jury added the following rider to their verdict —

We (the jury) recommend that anthrax should be universally (not only in London, but at Croydon, Mitcham, and many other districts throughout the country, including Bradford and the West Riding of Yorkshire—the chief seat of the wool trade) placed on the list of dangerous infectious diseases compulsorily notifiable by medical men in attendance on such cases, to the medical officer of health of the district in which the patient was under treatment, and, secondly, that all deaths from anthrax should be reported compulsorily to the coroner in whose district the body lies

Dr T M Legge, chief medical inspector of factories, stated in his evidence at the more recent inquest that his work was confined to factories and workshops, but that the reporting of cases of anthrax occurring in warehouses could only be "encouraged" He said "Their medical officer is obliged to report to me only if the disease is contracted in a factory or workshop, but not in warehouses, except in the County of London The occupier also has to report to the district inspector of factories and to the certifying surgeon of factories and workshops, but not warehouses, which may escape altogether" He further expressed the opinion that it would be most useful to hold inquests upon deaths by anthrax as an effective way of calling attention to the danger and as a means of prevention Dr Legge bore witness also to the usefulness of illustrated warnings, hung where workmen constantly have them before their eyes, in order to secure prompt recognition of pimples likely to be those associated with the disease Recently the attention of the Home Office has been called to the opinions expressed by the juries in the two cases above referred to, and the matter is not likely to be overlooked A Departmental Committee is considering the subject of anthrax in connexion with the wool industry, and its recommendations will, no doubt, take into account the state of affairs which the two inquests held by Dr Waldo have shown to exist The number of workmen who suffer in the course of the year from anthrax poisoning may not be large, but it is right and reasonable that the fullest possible protection should be given to all likely to be exposed to so deadly a disease Prevention and the earliest possible notification to all concerned are the objects aimed at by the Factory and Workshop Acts, and it is desirable that they should be hampered as little as possible by technical limitations as to the precise buildings or industries governed by them Meanwhile, the duties of medical practitioners who may find themselves in attendance upon cases of anthrax contracted in a factory or workshop are laid down in Section 73 of the Factory and Workshop Act, 1901

CHILD WELFARE

THE effect of the war in diminishing the personnel of the school medical services may become serious We learn from a statement by Mr Arthur Henderson the President of the Board of Education, that down to March, 1915, there were 850 school medical officers, of whom no less than 300 have now joined the military services This being the case it is more important than ever that the work dealing with maternity and infant care in general should be so perfectly coördinated as not to result in overlapping or the waste of public money In this connexion attention may be called to an article by Miss Annie E Barnes,[1] secretary of the Child Welfare Enquiry Office, in which it is urged that the time has come for the adoption by all local health authorities of a definite scheme for infant welfare, and that this scheme should include under one efficient controlling force all the efforts for the promotion of the well being of mothers and young children. Miss Barnes points out that at present it is possible for half the efforts in these directions to be provided by the health authority of the district and to receive their grants from the Local Government Board, while the remainder may be provided by voluntary means and receive their grants from the Board of Education Mr Henderson stated that the school medical services included not only medical inspection of school children, but the treatment of certain affections of the throat, eyes, ears, and skin, and that there were now in existence 350 school clinics We agree with Miss Barnes that the institutions which are an integral part of the general work of reducing infant mortality should be under the supervision of the health rather than the education authority, and so be brought into the general plan of campaign

PAYMENT FOR CERTIFICATION IN IRELAND

WHEN an agreement was arrived at between the medical profession and the Irish Insurance Commissioners last December as to a scheme for the certification of insured persons one point was left over for discussion when some experience of the scheme would have been gained A conference was held recently to deal with this reserved question—namely, the method of distribution of the Treasury grant—and the Irish Medical Committee decided to accept the proposal of the Commissioners Each insurance area is to have its own pool of funds which are to be divided among the several medical men certifying according to the work done by each The method of calculating the work done is ingenious, if a little complicated. The unit will be a certificate, but each initial and each final certificate will count as one and a half, certain other special certificates will count as two Before proceeding to distribute the pool the Commissioners will count the average number of certificates per case issued by each certifier, and a deduction will be made from the number of each certifier who has issued more than what is found to be the average number of certificates per case for the particular area

A NATIONAL SCHEME OF PHYSICAL TRAINING

A COURSE of lectures on a national scheme for physical training has recently been delivered in Manchester The scheme includes the protection of infant life by the institution of day nurseries Major R Tait McKenzie, R.A.M C, professor of physical education in the University of Pennsylvania, spoke on the necessity for a national scheme of physical education He urged that the physique of most of the recruits whom he saw in training for the Army during the summer had been allowed to take care of itself If they had entered upon training with a soundly developed body, their chances of survival in the

[1] Englishwoman, July 1916.

field would have been greatly increased That they had risen to the emergency as well as they did was a tribute to their spirit and courage, but it took more than moral stamina to endure the long march with a heavy pack, to hold the rifle with a steady arm, and to discharge their other militant duties Major McKenzie contended that it was simply committing national suicide to neglect the complete education of every child's physical powers at the present time Dr Barbara Tschaikowsky, in an address on infant welfare, made a strong appeal on behalf of infant life, based on the obvious lessons taught by the war At a later meeting promoted by the Manchester and Salford Council for Day Nurseries and Nursery Schools it was stated that the council was considering two schemes—one, in which the coöperation of employers will be sought, for temporary day nurseries or "war nurseries," situated near works where numbers of married women are employed, and another for the establishment of permanent day nurseries, to be combined, whenever possible, with nursing schools

THE COCAINE HABIT

UNTIL the war there does not appear to have been any substantial increase in the addiction to cocaine in this country, and the recent introduction of the habit among our troops is probably correctly attributed to the Canadians, whose example has been followed at first out of mere curiosity In the ranks cocaine is usually taken in the form of snuff, known as "snow," and the hypodermic method is not often used The victims of the habit allege that cocaine is taken to replace alcohol when that is unobtainable in sufficient quantities, or, if taken in the desired amount, would lead to punishment It is well known that drug habitues ring the changes for various causes between alcohol, morphia, opium, and cocaine, sometimes doubtless in the hope of breaking a habit, at other times because the particular poison desired is unobtainable The cocaine habit is largely prevalent in various parts of America, and has more recently invaded India. Now that the practice has been introduced among our young men there is a grave risk that the habit will spread, especially if the sale of liquor continues to be restricted, unless there are stringent precautions taken to stop the sale of the drug

THE medical profession has sustained a severe loss in the death at sea on July 17th, of Dr Arthur Hugh Lister, C M G, physician to the Aberdeen Royal Infirmary Lieutenant Colonel Lister was returning from Alexandria where he was in medical charge of the 19th General Hospital

THE death from wounds was announced last week of Mr R W Michell, Captain, R A M C (T), M D Cantab, F R C S Eng He was equally well known in scientific and athletic circles, and his death will cause a sense of personal loss to a very large circle of Cambridge friends

THE death is announced, in his 82nd year, of Mr Thomas James Walker, M D Lond., F R C S Eng, V D, consulting surgeon to the Peterborough Infirmary, and one of the most widely known practitioners in the provinces

A SERIOUS DEFECT IN SOME OF THE REGISTERED HOSPITALS FOR THE INSANE

BY HENRY RAYNER, M D ABERD

THE registered hospitals for the insane rank amongst the finest of English charitable institutions Their admirable and successful management is vouched for by the favourable reports of the Commissioners in Lunacy for many years past, and it would be difficult to praise too highly the medical treatment of the patients committed to their care. In one point only do they appear to fall short of the work which they were intended to fulfil, but that is one of a more serious and vital character, to which the attention of the public and of the boards of management of these institutions should be promptly given if they are to be prevented from departing still further from the object for which they were primarily founded—viz, the charitable assistance of persons of the educated class suffering from mental disorder.

The Commissioners in Lunacy have on more than one occasion drawn attention to the small amount of charitable assistance afforded by these institutions and in the first report of the Board of Control (for the year 1914) recently issued, there are the following paragraphs —

> The registered hospitals still continue to be conducted on good lines and in an enlightened manner and as heretofore they form a very important feature in the lunacy administration of the country —It is however necessary to repeat the admonition that as these institutions were originally founded upon a charitable basis as large a proportion of cases upon unremunerative terms should be received as is consistent with the reasonable financial stability of the hospitals and that the latter should not degenerate into luxurious homes for wealthy patients only or principally for them

In the entries made by the members of the Board of Control at their visits to ten of the principal registered hospitals there is a record of the percentage of patients received in each (1) free of all payment, (2) on weekly payments of less than 10*s*, (3) of from 10*s* to 21*s*, (4) from 21*s* to 42*s*, and (5) from 42*s* upwards

From the data thus given it appears that in the six more costly asylums whose weekly rates ranged from £3 7*s* 7*d* to £1 18*s* 3*d*, having an income from patients payments of over £286 000, a total of less than 14 patients were received without payment, 58 1 under 10*s* per week, and 149 95 at from 10*s* to 21*s* out of a total of 1622 patients whilst in the four hospitals whose rates vary from £1 15*s* 4*d* to £1 6*s* 7*d* weekly with an income from patients of £40 887 19 93 were received without payment 23 73 under 10*s* and 192 84 at from 10*s* to 21*s* in a total of 534 The total incomes from all sources in the two groups approximate to £300 000 and £50 000 and the average of the rate of maintenance is £2 14*s* 8*d* and £1 11*s* 10*d* respectively per hospital In tabular form and discarding fractions the actual charitable assistance in the two groups is —

	No payment	Under 10*s*	10*s* to 21*s*
1st group	14 patients	58 patients	150 patients
2nd "	20 "	24 "	193 "

From these data it may be gleaned that the hospitals having the lower rate of expenditure do a very large amount of charitable work in the number of persons assisted equal at least in this respect, to their more wealthy brethren and in relation to income nearly six times as much They show that even with small means much may be done

The hospitals with the high rate of maintenance might put forward the plea that all patients received on payments under the weekly maintenance rate, were charitably assisted to the extent of the difference between this and their actual payments, for example, that in a hospital with a weekly rate of maintenance of £3 a patient paying nothing would be benefited to the extent of £3 per week and one paying £2 10*s* to the extent of 10*s* per week. This however is an unsound way of looking at it In the first place a patient able to pay £2 10*s* ought not to need charity being able to obtain perfectly satisfactory care (as seen in the second group of hospitals) for an average of £1 11*s* 10*d* per week, and even less than this in the private annexes of county institutions But they do not obtain the full value of the higher rate of maintenance since the highly paying patients paying perhaps as much

as 8 and even 12 guineas per week, may cost actually 5 or 9 guineas per week if they get fair value for their money The result of this must be that the less highly paying patients are not maintained at anything like the average rate of maintenance, and are certainly not charitably assisted, as above suggested, to the extent of the difference between their payments and the maintenance rate If an estimate is made, however, on the basis that a patient is charitably assisted to the extent by which his payments fall below £1 per week, then patients paying nothing are benefited to the amount of £1, those paying less than 10s to about 15s those paying between 10s and 21s to about 5s per week. It will appear that one of these institutions out of its vast income would give charitable aid to the extent of less than 2 per cent , whilst one of the less wealthy group would give aid by nearly 20 per cent. of its income The total monetary aid given by the two groups on this estimate would closely approximate. If a similar estimate is made on a weekly rate at which charitable aid commences at 25s a result still more unfavourable to the more wealthy group of hospitals is arrived at in the contrast of the relative percentage of charitable assistance and income

It would appear therefore, that these rich institutions under existing conditions are a benefit to the wealthy and well to-do classes rather than to the poorer members of the same social standing Wealthy patients are often saved considerable expense (one person to my knowledge having an income of £4000 or £5000 per annum being maintained for £400 a year) but this assistance appears to result in the exclusion of many poor persons, who are consequently driven into or obliged to remain in pauper asylums as paupers That there are numerous insane persons needing the aid of such institutions as the registered hospitals is shown by the report of the Board of Control which says (p. 3) that—

> Many classed as paupers are not strictly speaking paupers in the generally accepted sense for a certain number of them are actually maintained by relatives, who refund to the Poor law guardians the whole cost of maintenance

The fact that in a total of 9963 private patients in England and Wales there are only 3879 males shows that there must be a large number of males of the private class who not having wage earning relatives to support them (as in the case of the females) become inmates of pauper asylums Were this not the fact, the numbers of male and female private patients should approximate much more closely

There can be no doubt either from statistics or from observation of the inmates of pauper asylums, that there are in them numerous persons of the educated classes who require charitable assistance and treatment under conditions and with associations more nearly approaching to their normal mode of life Such help is not only conducive to their comfort and to that of their friends but is also helpful in treatment. The want of it is often a source of grievous suffering and a drawback to the prospect of recovery

The admonitions of the Commissioners in Lunacy who possess from the Board of Control no actual power of insistence should be followed by some definite indications of the mode in which this much needed reform should be carried out It is certain that the managers of these institutions are desirous of doing charitable work and, if it is fully proved to them that the provision of palatial accommodation and luxurious menage (in rivalry with other institutions or for the purpose of attracting wealthy patients) are not conducive to this purpose they will be ready to adopt any suggestions made by the Board of Control and loyally attempt to carry them out

The statistics quoted above and the experience of the private annexes of pauper asylums suggest that one plan of adjusting the charitable activities of the institutions might consist in demanding that all receipts above a certain mean should be expended in charitable assistance to patients unable to contribute that sum for their maintenance 25s shillings per week, or something more in some hospitals would probably yield the most satisfactory results but this is of course a matter for the decision of the Board of Control The general conclusion must be drawn from the preceding facts that although the registered hospitals are conducted on good lines and in an enlightened manner [to quote the report] some of them lamentably fail to perform the charitable function for which they were originally founded, and have in some instances largely degenerated into luxurious homes for wealthy patients "

When it is considered that on an income approaching £300 000 in the six more expensive hospitals the really charitable help, whether calculated on the number of persons assisted or on the actual monetary aid, is so infinitesimal, while the actual luxurious expenditure is so large, we are inevitably reminded of Falstaff's "one halfpennyworth of bread to an intolerable deal of sack."

FORTY-FOURTH ANNUAL REPORT OF THE LOCAL GOVERNMENT BOARD

THIS report has now been issued in three sections, of which Parts I. and III concern medical readers

Poor-Law Administration

Under Part I the administration of the Poor law is dealt with, the Unemployed Workmen Act the Old Age Pensions Acts, and the special work arising out of the war in connexion with prevention and relief of distress, reception and accommodation of war refugees, distribution of the gifts from the dominions and colonies &c It may be remembered that in the early days of the war it was generally thought there was likely to be serious distress in this country as a result of unemployment and that steps were taken to combat this evil by the appointment of the Government Committee on the Prevention and Relief of Distress, the organisation of the country under local representative committees and the establishment of the National Relief Fund in response to an appeal from H.R H the Prince of Wales At the outset the Government Committee laid down the wholesome principles that distress should, wherever possible be met by the provision of work, that the work provided should be of a useful nature, and that relief by doles should be restricted within the narrowest limits In order to fulfil these requirements steps were taken to secure the coöperation of the principal spending departments of the Government with a view to the spreading of contracts, and arrangements were made for useful work to be done in connexion with the construction and repairing of roads as well as in other branches of public work. Fortunately, the unemployment due to the dislocation of industry at the outbreak of war was of short duration, and few of the schemes of work which had been prepared had to be used. The initial unemployment was soon neutralised by the number of workmen who joined the naval and military forces, while the depression experienced in certain trades was counteracted by the great activity in the industries engaged in fulfilling Government orders At the end of October employment had reached practically the same level as in the period before the war, and by the early part of 1915 the situation had so far improved that the question of unemployment generally had almost disappeared. The total number of persons in receipt of Poor law relief in England and Wales was smaller at the end of the year 1914-15 than at the end of the preceding year Exclusive of pauper lunatics in lunatic asylums the total number of persons in receipt of relief at the end of 1914-15 was 652,152, showing a decrease of 19 968, as compared with the figure at the end of 1913-14, which amounted to 672,120 Further, pauperism in 1914-15 was considerably less than the average for the five years 1909-10 to 1913-14 inclusive Apparently those brought up in Poor law institutions show no lack of patriotism, for we are told in this report that large numbers of such men have joined the colours and are serving either in the Navy or Army The list includes three who have earned the V C and a number who have won various other military honours

The gross expenditure on relief of different classes of paupers exclusive of sums repaid by the Poor law authorities on account of non settled poor amounted for the year to £15 373 668 apportioned as follows indoor paupers £8 972,655, outdoor paupers £3 653 433, pauper lunatics £2 792,824 The remainder consisting of such establishment and other charges as cannot readily be apportioned amounted to £554 746 It will be remembered with pride that the dominions and colonies overseas sent gifts of large quantities of foodstuffs to this country shortly

after the outbreak of war In view of the speedy recovery in industrial activity alluded to above it soon became unnecessary to reserve the whole of this supply of food for the relief of distress at home and a considerable quantity of flour was made over to the Commission of Relief in Belgium at a price to be fixed by the Board of Trade, while a very large part of the balance of the flour and other gifts was handed over to the Army Council for the use of the troops The British Medical Association and the Pharmaceutical Society put forward and coöperated in a scheme for the provision of free medical attendance and the supply of medicines and appliances at cost price to dependents of men serving with the colours, except to those whose circumstances were such as to render such assistance unnecessary In connexion with war refugees, it is stated in this report that the War Refugees Committee had, at March 31st, 1915, despatched 87,729 refugees to the local committees for hospitality in their respective areas Refugees arrived from the continent both by the ordinary passenger boats and by special services which had been arranged for the transport of Belgian refugees from Holland Dr Reginald Farrar, one of the medical inspectors of the Local Government Board, took charge of a branch office in Flushing, and showed great zeal and devotion in the work of examining and embarking the refugees and looking after their various wants

Public Health Treatment of Tuberculosis

Part III of the report deals with (*a*) public health and local administration, (*b*) county council administration, (*c*) local taxation and valuation The subject dealt with under (*a*) will be of greater interest to readers of this journal than those under (*b*) and (*c*), though, as the information given under (*a*) relates mainly to the year ended March 31st, 1915, much of it is rather ancient history to those who follow closely the development of public health work The report of the Board's medical officer appeared, as in previous years, as a supplement to this report and a review of its contents appeared on p 636 of THE LANCET of March 18th

The section of the report dealing with the treatment of tuberculosis has reference to the period ended June 30th, 1915, and applies to England only Up to the outbreak of war steady progress was being made with the development of approved schemes of treatment, and the large majority of counties and county boroughs had adopted schemes which had received the approval of the Local Government Board A considerable number of men have been discharged from the Army suffering from pulmonary tuberculosis, and, as the large majority of soldiers are insured persons, arrangements are now in operation whereby, in the case of insured men discharged from the Navy or Army suffering from tuberculosis and requiring treatment in a residential institution, the necessary accommodation is found by the Insurance Commission or by the appropriate Insurance Committee As many workhouses and infirmaries have been temporarily taken over by the military authorities for use as hospitals, it has been necessary for the local authorities in certain districts to increase the accommodation provided by them for the treatment of tuberculosis in order to provide accommodation for tuberculous persons usually maintained in institutions belonging to the guardians The Local Government Board has approved of the appointment of 131 tuberculosis officers by county councils, of 100 by county borough councils, and of 7 by joint committees of county and county borough councils As a large majority of the tuberculosis officers are men of military age, the demands for their services on duties immediately connected with the war have naturally been great, and 69 of these officers had, up to June 30th, 1915, resigned either temporarily or permanently in order to render war service The loss, thus occasioned, of nearly 33 per cent of the responsible clinical officers naturally involved some dislocation of the machinery for dealing with tuberculosis, and temporary measures had to be devised in order to secure that the most important aspects of the work should be interfered with as little as possible Such temporary measures included the appointment of suitable medical practitioners to act as temporary tuberculosis officers, or the utilisation of the part-time services of officers engaged in other public health work In this connexion the Board state that they have been impressed by the willingness of the medical profession as a whole to put their services at the disposal of the nation in whatever capacity might be deemed most useful In regard to the financial aspect of the treatment of tuberculosis, it appears that the total maintenance grant paid during the year ended March 31st, 1915, was £155,799 5s 9d The share of England in the capital grant of £1,500 000 which was made available by the Finance Act, 1911, to aid the provision of sanatoria and other institutions for the treatment of tuberculosis amounted to £1 116,156, and up to June 30th, 1915, grants amounting to £408,669 had been definitely promised towards the cost of institutions forming parts of schemes approved by the Local Government Board Of this sum £195 279 had been actually paid

The question of conferring upon local authorities further powers in regard to the compulsory isolation of persons suffering from pulmonary tuberculosis who are in a highly infectious condition is discussed in this report It appears that some nine local authorities have already obtained such special powers under local Acts, but that it has not yet been found necessary to make any extensive use of them The opinion is expressed that the matter is one which requires careful consideration

Vaccination Unsatisfactory Position

The section of this report dealing with vaccination is far from cheerful reading The number of certificates of successful vaccination received during the year 1914 was 404,616, as against 430,470 in 1913, and the number of certificates of exemption 321,313, as against 308,235 in 1913 The number of persons on whom successful primary vaccinations were performed by the public vaccinators during the year ended Sept. 30th, 1914, was 301,416, of whom 284,227 were infants under 1 year of age The latter number includes 4223 children who were vaccinated by medical officers of workhouses and infirmaries During the same period 13,651 successful revaccinations were performed at the cost of the rates The total number of births registered during the year ended Sept 30th, 1914, was 882,333, and, when this number is compared with the number of children under 1 year of age (284,227) who were vaccinated by the public vaccinators, it may be assumed that about 32 2 per cent of the children born in the year were vaccinated at the public expense This ratio of 32 2 per cent of successful primary vaccinations by public vaccinators to the total number of births registered constitutes the lowest on record since 1898 On the other hand, there are indications that this country may have to face an epidemic of small pox before very long In certain parts of Europe Asia, and America at the present time small pox has assumed epidemic prevalence, and even in England and Wales there have been an unusual number of scattered cases during the last few months In these circumstances, with an ever increasing number of unvaccinated persons added annually to the population, the future is not without its anxieties

THE SERVICES

ARMY MEDICAL SERVICE

To be temporary Colonels Major F F Burghard, C B, R.A.M C (T F), and Temporary Lieutenant-Colonel T C English

ROYAL ARMY MEDICAL CORPS

To be temporary Majors Major T M Carter (T F Reserve), Captain C A Pannett, R A.M C (T F), and Captain P Hamill, R A.M C (T F)

Temporary Captain W Ormsby relinquishes his commission Temporary Captain G A Borthwick relinquishes his commission on account of ill health

Temporary Lieutenant Francis P Kennedy relinquishes his commission

Temporary Lieutenants relinquish their commissions on account of ill health W E Huff Hewitt and G P Sheehan

C C Goodall to be temporary Honorary Lieutenant whilst serving with the British Red Cross Hospital, Netley

F W Goyder to be temporary Honorary Lieutenant whilst serving with St John Ambulance Brigade Hospital

Canadian Army Medical Corps The undermentioned Captains (Canadian Militia) to be temporary Captains W F Jackson, D L Fee H A. Dixon, E B Moles, A. W Knox, E E McPherson, H C Wallace, J L McDonald, H A. Hessian, A. J McCallum, and W C Givens Lieutenant J D Adamson (Canadian Militia) to be temporary Captain

Supplementary to Regular Units or Corps Royal Army Medical Corps—Cadet J N L Blamey, University of London Officers Training Corps, to be Lieutenant

TERRITORIAL FORCE

Royal Army Medical Corps

North Midland Casualty Clearing Station Lieutenant A Young to be Captain

Highland Mounted Brigade Field Ambulance T L shforth to be Lieutenant

Northumbrian Field Ambulance, To be Lieutenants t W Nevin and J R Mitchell

South Wales Mounted Brigade Field Ambulance Lieu enant J O Cuthbertson to be Captain

Scottish General Hospital Captain H J Stiles is seconded whilst holding a temporary commission in the R A M C

London Field Ambulance Lieutenant (temporary Captain) J E Sandilands to be Captain

Attached to Units other than Medical Units —Lieutenant F W White to be Captain H W Beedham to be Lieutenant

ROYAL NAVAL VOLUNTEER RESERVE

To be temporary Dental Surgeons R R Adams and F H Richards

THE ORDER OF THE NILE

The King has given permission to Lieutenant-Colonel F F Carroll, R A.M C, Principal Medical Officer, Egyptian Army, and to Major J Powell, R A.M C, late Egyptian Army, to accept and wear the decoration of the Third Class of the Order of the Nile conferred upon them by the Sultan of Egypt

VITAL STATISTICS

HEALTH OF ENGLISH TOWNS

IN the 96 English and Welsh towns with populations exceeding 50,000 persons at the last Census, 8104 births and 3675 deaths were registered during the week ended Saturday, July 22nd The annual rate of mortality in these towns, which had declined from 12 6 to 10·7 per 1000 in the four preceding weeks, rose in the week under notice to 11 1 per 1000 of their aggregate civil population, estimated at 17,312,295 persons for the year 1915 During the 13 weeks of last quarter the mean annual death rate in these towns averaged 14 3, against 13 8 per 1000 in London Among the several towns the death rate last week ranged from 5 0 in Rhondda, 5 1 in Enfield, 5 5 in Southend-on Sea 5 7 in Lincoln, and 6·0 in Reading, to 15 3 in Bootle, 15 4 in Brighton, 15 5 in Barnsley, 16·0 in Exeter, and 18 6 in Gateshead

The 3675 deaths from all causes were 123 in excess of the number in the previous week, and included 212 which were referred to the principal epidemic diseases, against numbers declining from 335 to 222 in the seven preceding weeks Of these 212 deaths, 59 resulted from measles, 46 from infantile diarrhœal diseases, 43 from diphtheria 42 from whooping cough, 17 from scarlet fever, and 5 from enteric fever but not one from small pox. The annual death rate from these diseases was equal to 0·6, against 0 7 per 1000 in each of the five preceding weeks The deaths attributed to measles, which had been 68, 60, and 62 in the three preceding weeks, fell to 59, and included 16 in London, 9 in Liverpool, 6 in Sheffield, and 4 each in West Ham, Wolverhampton, and Bir mingham The deaths of infants (under 2 years) from diarrhœa and enteritis which had been 50, 54, and 51 in the three preceding weeks, fell to 46 of which 12 occurred in London and 4 in Birmingham The fatal cases of diph theria, which had been 29, 36, and 47 in the three preced ing weeks, fell to 43, 8 deaths were registered in London, 6 in Bradford, 4 in Stoke-on Trent and 3 in Wolverhampton The deaths attributed to whooping-cough, which had been 55, 61, and 40 in the three preceding weeks, slightly rose to 42, and included 8 in London, 7 in Birmingham, and 6 in Manchester The deaths referred to scarlet fever, which had been 13, 4, and 15 in the three pre ceding weeks, rose to 17, of which 5 were recorded in London and 2 in Salford The fatal cases of enteric fever, which had declined from 13 to 7 in the four preceding weeks, further fell to 5, but showed no excess in any particular town

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had declined from 1303 to 1236 in the four preceding weeks, had further fallen to 1216 on Saturday last, 172 new cases were admitted during the week, against 162, 170, and 150 in the three preceding weeks These hospitals also contained on Saturday last 1266 cases of diphtheria, 153 of measles 162 of whooping-cough and 43 of enteric fever, but not one of small pox. The 895 deaths from all causes in London were 7 in excess of the number in the previous week and corresponded to an annual death rate of 10·3 per 1000 The deaths referred to diseases of the respiratory system which had been 107, 95 and 117 in the three preceding weeks, fell to 99 in the week under notice

Of the 3675 deaths from all causes in the 96 towns, 176 resulted from violence, 326 were the subject of coroners' inquests, and 1187 occurred in public institutions The causes of 29, or 0 8 per cent, of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest All the causes of death were duly certified in London and in its 14 suburban districts, in Manchester, Sheffield, Leeds, Bristol, and in 63 other smaller towns Of the 29 uncertified causes, 7 were registered in Liverpool, 5 in Birmingham, 3 each in South Shields and Gateshead, and 2 in Hull

HEALTH OF SCOTCH TOWNS

In the 16 largest Scotch towns with an aggregate population estimated at 2,372,000 persons at the middle of this year, 1141 births and 511 deaths were registered during the week ended Saturday, July 22nd The annual rate of mortality in these towns, which had been 12 6, 12 4, and 12 6 per 1000 in the three preceding weeks, fell to 11 2 per 1000 in the week under notice During the 13 weeks of last quarter the mean annual death rate in these towns averaged 15 3, or 1·0 per 1000 in excess of that recorded in the large English towns Among the several towns the death rate last week ranged from 3 4 in Coatbridge, 6 2 in Ayr, and 6 4 in Kirkcaldy to 13 3 in Edinburgh and in Dundee, 13 8 in Falkirk, and 14 6 in Leith

The 511 deaths from all causes were 60 below the number in the previous week, and included 39 which were referred to the principal epidemic diseases against 46 and 44 in the two preceding weeks Of these 39 deaths, 17 resulted from measles, 7 from infantile diarrhœal diseases, 6 from diphtheria, and 3 each from enteric fever, scarlet fever, and whooping-cough, but not one from small pox The annual death rate from these diseases was equal to 0·9, against 0·6 per 1000 in the large English towns The deaths attributed to measles, which had been 28, 19, and 18 in the three preceding weeks, numbered 17 last week and included 9 in Glasgow, 3 in Leith, and 2 in Edinburgh The deaths of infants (under 2 years) from diarrhœa and enteritis, which had been 13, 5, and 8 in the three preceding weeks, were 7 last week, of which 5 occurred in Glasgow The fatal cases of diphtheria, which had been 5, 5, and 3 in the three preceding weeks, rose to 6, and included 2 in Edinburgh The 3 deaths from enteric fever were recorded in Glasgow, Dundee, and Clydebank respectively The 3 deaths attributed to scarlet fever were 2 below the average in the three preceding weeks, and were registered in Glasgow, Motherwell, and Ayr respectively The fatal cases of whooping-cough, which had been 5, 8, and 8 in the three preceding weeks, fell to 3, and comprised 2 in Glasgow and 1 in Paisley

The deaths referred to diseases of the respiratory system, which had been 57, 64, and 50 in the three preceding weeks, rose to 62 in the week under notice but were 10 below the number registered in the corresponding week of last year The deaths from violence numbered 22, against 23 and 16 in the two preceding weeks

HEALTH OF IRISH TOWNS

In the registration area of Dublin 206 births and 116 deaths were registered during the week ended Saturday, July 22nd. The annual rate of mortality, which had been 17 9, 17 6, and 18 8 per 1000 in the three preceding weeks, fell to 15 2 in the week under notice, against 10 8 and 11 1 per 1000 in London and Glasgow respectively

Of the 116 deaths at all ages, 23 related to infants under 1 year and 25 to persons aged 65 years and upwards Three deaths of infants (under 2 years) were referred to diarrhœal diseases, and 1 each to measles and diphtheria

The causes of 10 deaths were uncertified, and 3 others were the subject of coroners' inquests, while 51 or 44 per cent, of the total deaths occurred in public institutions

During the same period 165 births and 109 deaths were registered in the city of Belfast The deaths corresponded to an annual rate of 14 6, or 0·1 per 1000 less than in the previous week, and included 16 of infants under 1 year and 23 of persons aged 65 years and upwards Two deaths were referred to measles, and 1 each to enteric fever and whooping-cough The causes of 3 deaths were the subject of coroners' inquests, and 32 deaths occurred in public institutions

NATIONAL WELSH MEDICAL SCHOOL —A deputation from the Council of the University College of South Wales has been appointed to urge the Ministry of Munitions to permit the building of the department of public health and preventive medicine simultaneously with the physiological block The deputation includes the President and Vice-Presidents of the Council and the Principal, Dr E H. Griffiths

Obituary.

SIR VICTOR HORSLEY, M B, B S LOND, F R C S ENG, F R S

COLONEL CONSULTANT, MEDITERRANEAN EXPEDITIONARY FORCE; CONSULTING SURGEON UNIVERSITY COLLEGE HOSPITAL SURGEON TO THE NATIONAL HOSPITAL FOR PARALYSIS AND EPILEPSY

WE regret deeply to chronicle the death of Sir Victor Horsley, while he was acting as consulting surgeon to the British Forces in Mesopotamia His eminent scientific position and the numerous social causes of which he was the champion made him one of the best known as well as one of the most widely admired of our professional leaders, and the number of public men, private friends, colleagues, and pupils is really great to whom Horsley's sudden death has come as a shock when recalling his vigorous and forceful personality

Victor Alexander Haden Horsley was born in Kensington in 1857, the son of the late J O Horsley, the well known painter He was educated at Cranbrook School and University College Hospital, where his career was an unbroken line of academic successes He qualified as M B Lond and B S in 1881, winning the University scholarship and the gold medal in surgery Two years later he took the F R C S Eng, and for a time was occupied with minor posts in connexion with the hospital, although he was already engaged upon original physiological work. From 1884 to 1890 he was Professor Superintendent of the Brown Institution, and while he occupied that post he made the elaborate and exhaustive experiments which went to show that myxœdema was caused by absence of the thyroid gland In 1885 he was elected assistant surgeon to University College Hospital, and in the following year surgeon to the National Hospital for Paralysis and Epilepsy In 1893 he became full surgeon to University College Hospital, but resigned four years later, being elected consulting surgeon. From 1891 to 1893 he was Fullerian Professor at the Royal Institution, and from 1893 to 1898 he was Professor of Pathology at University College In 1911 he was the first recipient of the Lannelongue International Prize in Surgery Elected when quite young to the Royal Society, he was a Royal Medallist of the Society and a Foreign Associate of academies and scientific bodies all over Europe From 1897 to 1906 he was a Direct Representative on the General Medical Council, he was the first chairman of the Representative Meeting of the British Medical Association, a body called into existence at the reconstitution of the Association, he was a candidate for Parliament in the Liberal interest, standing especially on temperance and women's suffrage lines

Such is the brief outline of Victor Horsley's life, and in every indicated direction he became a leader in thought and in action By the end of the "eighties," and whilst still about the age of 30, he had gained for himself an extraordinary position owing to his original work in various directions on ground common to physiology and pathology As secretary to the Myxœdema Commission, whilst Ord and others supplied clinical material, Horsley collected information from Switzerland, and furnished the needed proof by removal of the thyroid gland from monkeys When he became superintendent of the Brown Institution he was called upon to investigate the widespread occurrence of rabies and hydrophobia He had learned under Pasteur in Paris to recognise rabies in the material sent to the institution from various animals in addition to dogs, such as cats, foxes, horses, rabbits, and the deer in Richmond Park There had been much confusion as to the signs of the disease On the one hand there was a mare which, after being bitten on the muzzle by a dog, kicked the stall to pieces in violent excitement, and on the other hand the so-called "dumb rabies," the rapidly ascending spinal and bulbar paralysis from which Horsley's laboratory attendant died Horsley's investigations into rabies formed the scientific basis of the Muzzling and Quarantining of Imports Orders which stamped out the disease, in accordance with his published prediction He surrounded himself at the Brown Institution with a number of workers, all of whom shared his enthusiasm For instance, L C Wooldridge was engaged on that fundamental subject in physiological chemistry—blood coagulation—and, aided by Horsley's suggestions, he perfected a most striking experimental demonstration of the effect of normal saline infusions From this arose the use of normal salt solution in this country, previously it had been entirely unknown in surgical practice The sudden death of Wooldridge deeply affected Horsley, he connected it with other cases in which cardiac and visual disturbances had been attributed to tobacco, and the event intensified his antipathy to smoking

In many investigations Horsley was the active leader and in many he was an effective partner He mapped out with C E Beevor the areas on the brain of the rhesus and allied monkeys When they were able to obtain anthropoid apes they demonstrated the arrangement of the sensori motor areas in front of the fissure of Rolando, and confirmed the existence of the so-called "silent" areas both points having already been brought under Horsley's notice in man A series of experiments on the spinal cord including the production of degeneration along tracts, and the demonstration of spinal cord currents were performed in conjunction with Professor Gotch at Oxford The results of their work were published in the Croonian lecture at the Royal Society in 1891

Concurrently with his work at the Brown Institution Horsley was in charge of the pathological laboratory at University College, where he was ably seconded by Rubert Boyce The Syllabus of Lectures on General Pathology which they drew up was exhaustive, the one thing lacking was an audience The medical student was concerned only with the requirements of his examination, teaching was then confined to pathological anatomy and histology, which had its focus in the old Pathological Society, and Horsley and Boyce were before their time Horsley became one of the principal originators of the Pathological Club which in its turn anticipated the wider scope of the present Pathological Section of the Royal Society of Medicine, including its laboratory meetings Everybody recognises nowadays the importance of chemistry but there was much criticism when Horsley's influence enabled a department in chemical pathology to be set up alongside his laboratory Press of work soon forced him to give up both the Brown Institution and the Pathological Laboratory at University College, but he continued to carry on original investigations Perhaps the two to which he devoted most work over a prolonged period, and in which difficulties and obscurities have presented hitherto insuperable obstacles, were those relating on the one hand to epilepsy, and on the other hand to intracranial tension resulting in particular from bullet wounds Whatever he may have published on these subjects must represent but a fraction of the time, labour, and thought he devoted to them

Horsley in all his experiments and researches had a practical aim in view, he lived and died in the practice of surgery He served at University College Hospital in the various posts up to that of surgeon, but it is as surgeon to the National Hospital for the Paralysed and Epileptic that he will be chiefly known Before him the surgery practised there had been limited to the haphazard uncritical performance of tenotomy which Stromeyer and Dieffenbach had popularised in the "forties" of last century Horsley's three cases of brain surgery, read at the British Medical Association Meeting in 1886, marked the commencement of a phase of notable activity His experiments in connexion with myxœdema started him on the surgery of the thyroid gland, and the nervous disturbances connected with that gland linked it with cerebro spinal surgery Moreover, arising out of the myxœdema inquiry he made experiments on the removal of the pituitary gland in animals, subsequently he began to operate for pituitary tumours The remarkably successful operation in which he removed a tumour which had been diagnosed by Gowers as compressing the spinal cord forms a permanent landmark in the history of surgery He had to begin operating at the National Hospital without the provision of an operating theatre. Just as Spencer Wells did his first ovariotomy at the Samaritan Hospital, so Horsley started to expose the roots of the fifth nerve and the Gasserian ganglion in the corner of a ward shut off by screens The wonderful physiological and pathological knowledge possessed by Horsley enabled him to achieve many extraordinary successes, but he met also with partial success, as well as with failure, and the records of the work which he did are neither full nor satisfactory He commenced quite early to

sketch out a systematic work on brain surgery, but whilst he published a number of remarkable contributions on various sections of his work the systematic book has not appeared It would be a great contribution to surgical knowledge if to the publication of his long list of successes there might also be added details of the cases in which his best efforts failed to achieve their object

A significant feature of Horsley s experimental work in neurology was his explicit belief that experience in laboratory research is of direct value to the clinician, and especially to the surgeon. His own experimental investigations were characteristically those of a clinician seeking in the laboratory to obtain light on the symptoms seen in the clinique His theme was therefore practically always the "localisation" problem in one or another of its forms the "localising" of centres or the "localising" of conducting tracts Thus, the original results of Ferrier on the functional topography of the cortex of the cerebrum were minutely reworked over, and a number of important details added The upward conduction lines in the spinal cord were reinvestigated and attempts made at better quantitative evaluation of the crossed and uncrossed effects The region of the thalamus was carefully explored with interesting results The subject of cerebellar function as far as it can be studied by electrical stimulation was laboriously re examined and new data contributed All this work was done in collaboration now with one colleague now with another, and that fact exemplifies a mental trait characterising Horsley in other of his activities as well—namely intense striving after coöperative effort In his collaboration with others in research he himself usually suggested the immediate aim towards which the investigation should be directed, and the elaboration of the method employed would lie with his collaborator These partnerships were many and brought much of neurological value to light Contact with him in the laboratory was always an incentive to effort His early activity as an investigator by experiment and his fearless public endorsement of the rights of such inquiry brought on him the special opprobrium of the antivivisectionists He contributed largely to the public refutation of the misstatements of these opponents Among all the varied social interests of his later life this keen championship for the rights of those who engage in inquiry by vivisection remained ever as active as it had been at the beginning of his career

The following has been sent to us by a pupil of Horsley who later became a colleague It repeats details that we have already mentioned in presenting a very complete, if brief, picture of Horsley's neurological work. "If we are to judge of a man's pre eminence by the reputation his work obtains both at home and in continental and foreign schools of medicine, few have equalled and none surpassed that which was universally acknowledged as having been worthily earned by Sir Victor Horsley As a cerebral physiologist and anatomist he was in the very front rank of experimental workers The passion which he showed while yet a surgical registrar at University College Hospital for this variety of research never was dimmed through the busy years of a very large surgical practice Taking up with characteristic energy and enthusiasm the lines of research initiated in this country by Sir David Ferrier, he probed ever further into the intricacies of cerebral and cerebrospinal function The Philosophical Transactions and the Proceedings of the Royal Society, the *Journal of Physiology*, and *Brain* more particularly of the 'eighties' and 'nineties' of last century, contain a series of papers which, when judged merely by the quantity of output seem a tremendous accomplishment for a young man, but when their originality and quality are also considered they will be admitted to constitute a record that is all but unique By himself, or in collaboration with Sir Edward Schäfer the late Professor Gotch Sir Felix Semon, and others, he made enduring contributions to our knowledge of the functions of the brain and spinal cord Perhaps his best work in this respect was done in association with the late Dr Charles Beevor This was an ideal combination, the enthusiasm and rapidity of work of the one had a valuable counterpoise in the patience, caution and critical hesitancy of the other Their joint work on the connexion of the cortex with the lower centres on the electrical excitation of the cortex and internal capsule of the orang outang on the internal capsular fibres of the bonnet monkey, on the

SIR VICTOR HORSLEY, F R S
COLONEL (TEMP) ARMY MEDICAL SERVICE.

motor cortex of the monkey, on the centres for face, mouth, throat, and larynx in the ape, &c , has long ere this been acknowledged as classical. Horsley would not allow the exigencies of his surgical work to interfere with his experimental investigations He organised a laboratory of experimental neurology at University College, and there he was always to be found on certain afternoons in the week tackling fresh problems with undiminished ardour, as the pages of *Brain* testify None who have ever worked there under his ægis are likely to forget his infectious keenness and his unequalled generosity All that he asked was that men who came there should be workers, and they did come, in an unfailing stream, from home, from the colonies, from America, Germany, Poland, France, and elsewhere It was a matter of indifference to him whether their researches were published with or without his expressed collaboration , all recognised that he was the leading spirit in the international coterie that laboured in that odd shaped and out-of the-way room which to many of the younger generation of neurologists at home and abroad was a veritable Mecca. Brilliant and enduring as his reputation is certain to be as an experimentalist, his world wide fame rests undoubtedly on his superlative eminence as a neurological surgeon The surgery of intracranial and spinal tumours was a *terra incognita* when Horsley began, in the 'eighties' of last century to explore where others had been afraid to tread Fortified by his experimental knowledge, and with a sureness of touch acquired in a similar way, he did not hesitate to tackle any form of cerebral or cerebellar case, as an early paper of his in the *British Medical Journal* for 1887 will show This article was written to demonstrate, among other points, the 'details and safety of his methods,' words which must appear a little strange to day, when cerebral surgery is undertaken almost as a routine In 1888 he successfully removed a spinal tumour by operation in a case under the care of the late Sir William Gowers This was the first time the operation had been performed, and it was an epoch marking event The full record of the case is in the Medico Chirurgical Transactions for 1888, and is well worth perusal Thenceforward Sir Victor Horsley's position as a bold and skilful neurological surgeon was supreme At the International Medical Congress held at Berlin in 1890 his communication on the surgery of the central nervous system was hailed with acclamation The tribute of the foreigner was voiced in Professor Oppenheim's 'Lehrbuch der Nervenkrankheiten' when he declared that 'this celebrated neurologist and surgeon has since then remained the master of his subject, and he may well be proud of his great experience and success' Not content with his attainments, Horsley laboured continually to improve his technique in intracranial work, witness the address on surgery given at the Toronto meeting of the British Medical Association in 1908 The prime factor in his astonishingly successful results was the speed with which he operated. No one could handle his instruments so dexterously as he did himself, though his methods have been copied and modified far and wide While scientists made their way to his laboratory for his experimental investigations, distinguished clinicians came to Queen square to see him operate It was no uncommon sight to see there such visitors as Kocher, Babinski, de Martel, Picque, and others that might be mentioned His audience in the operating theatre at the time of the International Medical Congress of 1913 was a particularly brilliant one Horsley's results in extirpation of the Gasserian ganglion for trigeminal neuralgia were particularly good, and he had operated on hypophyseal tumours half a-dozen times or more by the subtemporal route before any other surgeon had begun to record similar essays He was *facile princeps* in neurological surgery, a prince of brain surgeons With characteristic independence and, one may almost say, impatience, he made his own diagnoses and carried out his own ideas in regard to treatment in a way that sometimes brought him into conflict with his medical colleagues But he was ever a fighter, and his self confidence was widely based on his unequalled experience Neurology as a science owes its established position to the labours of those mighty pioneers whose names are familiar to all the profession. Among them the name of Sir Victor Horsley is inferior to none in actual international fame, it is that also of a man who in versatility of accomplishment and in combination of theoretical and practical attainment was unequalled by any "

An officer who served with him in Egypt writes of the last phases of his strenuous career in these words "Sir Victor Horsley's death in Mesopotamia is one of the tragedies of the war I had the honour of being attached to the general hospital in which he at first was in charge of the surgical section That a man of his eminence in the profession should have consented to accept such a position was a proof, if any were needed, of his intense desire to do everything that lay in his power to serve his country From the very first his energy and keenness was an example to us all Soon after his arrival in Egypt he was given an appointment more in keeping with his professional position and was made consulting surgeon to the Forces. Before this, however, he had done an immense amount of valuable work in assisting to organise the surgical side of the base hospital to which he was originally attached As a consulting surgeon he did splendid work, he devoted with unsparing zeal both time and energy to finding out and correcting, as far as lay in his power any defects of equipment or mistakes in organisation in the hospitals, and in the early days in Egypt there were many of these He was always ready to help with his advice and example those of us who asked him to do so, and in the midst of the most trying circumstances he never lost his cheerfulness or good temper In spite of all the calls upon him he found time to carry out some original work in connexion with the infection of head wounds, and it was entirely owing to his teaching and example that the results of the operative treatment of these injuries, at any rate in one of the hospitals, were so extremely good His energy and devotion to his work was the more striking because it was obvious that the atmosphere of a military hospital was not very congenial to him and when we remember his force of character and independence this is not to be wondered at The amount of work he got through in Egypt undoubtedly tried his strength, and he could not be persuaded to rest to the extent that was really necessary, especially in the hot weather A tour of inspection which he paid to the Peninsula did him good in this respect, but the many muddles and deficiencies which he found there must have had a depressing effect upon his spirits He volunteered for duty in Mesopotamia without any thought for himself, and I am sure that he went there in the hope that he might be able to do something to remedy the defects in the medical arrangements which are now so notorious. If he expended as I am sure he did all his strength and energy on this work, it is little wonder that he should have succumbed to the effects of that most trying climate Victor Horsley was a most charming personality and he was a great favourite in our mess His death leaves a blank in the branch of surgery, which his genius had played so large a part in founding, that at the present there is no one fitted to fill"

Great as were the services rendered by the late Sir Victor Horsley to physiology and surgery, he had titles to fame outside his professional work For some years prior to the war he had devoted much time and energy to politics, taking an active part in elections, and standing for the University of London at the last general election. In politics he was an advanced Liberal and democrat Free Trade the great Budget of 1909, the removal of the undue influence of the House of Lords on legislation all found in him a vigorous and eloquent champion Perhaps to the outside world he was best known as a most ardent advocate of the cause of temperance, basing his support not on mere general grounds but on scientific reasoning, to which his distinguished professional career added very great weight He also embraced the cause of women's suffrage with all the ardour of a chivalrous temperament Had he lived, however he would probably not have made a successful politician, for he understood very little of the art of compromise which is more essential to success in English than in continental politics His constant employment of the deductive method of reasoning, perhaps the outcome of his scientific training, was peculiarly unsuitable to politics, and especially to the politics of this country He could not have subscribed to the dictum of so staunch a reformer as Macaulay that you should never "remove an anomaly simply because it was an anomaly" Horsley's logical mind was out against all anomalies Like many men of advanced views, he was inclined to think that very much of the evil in the world might be set right by a few drastic measures He did not possess a profound knowledge of

nan nature, and was not interested in trying to under nd why men think as they do think, consequently he often led to appreciate the views of his opponents and was ily led to suppose that they were necessarily perverse and stinate people With regard to the medical profession he ems to have felt that somehow the State did not know how make use of the knowledge possessed by such a large dy of highly educated and scientifically trained men Horsley died full of plans for the future, but with a past wonderful accomplishment He died for his country, aving taken upon himself a splendid task for which his hysique was not wholly fitted, and he will be sincerely ourned by countless friends, pupils, colleagues, and dmirers He had many differences of opinion with many of hem, and sometimes they were violent ones, for Horsley was uncompromising but all such feelings will be merged in one of deep and sincere regret that Victor Horsley should be gone from us

Sir Victor Horsley married in 1887 Eldred, third daughter of Sir Frederick Bramwell, Bart by whom he had two sons and one daughter To Lady Horsley and her family the deepest sympathy will be extended in their irreparable loss

WALTER WILLIAM HUNT TATE, M D LOND, F R C P LOND,

OBSTETRIC PHYSICIAN TO ST THOMAS'S HOSPITAL

Walter William Hunt Tate was born on Dec 18th, 1865, his father, George Tate, being a practitioner in the north of London He received his early education at University College School, joined University College as a medical student, and finished his clinical work at University College Hospital He won early recognition from his teachers as a capable and earnest student and held the resident posts at the hospital of house physician, house surgeon and obstetric assistant He was afterwards elected resident medical officer and performed the duties of this important post with great success On the termination of this appointment he had intended going into general practice in the Hampstead neighbourhood, but the post of obstetric tutor and registrar at St Thomas s Hospital being created he applied for the post and was elected

Though appointed as tutor and registrar, Tate was from the first for all practical purposes, assistant obstetric physician, for Dr Cory, who held that post, was in indifferent health Dr Cullingworth, the senior obstetric physician had a high standard by which he judged men, and that Tate at once obtained his confidence to the full was a tribute to the self reliance and power which had enabled so young a man to make the most of his unusually favourable opportunity Dr Cullingworth entrusted him more and more with a share of the ward work, and relied on him for relief from night emergency work and for holiday duty The only real difference made by his appointment in 1896 as assistant physician on Dr Cory s resignation was that he then began regular clinical teaching in the out-patient department in addition to acting as Dr Cullingworth's assistant and deputy

It is not however as a teacher in the out-patient room that Tate will be remembered by the St Thomas's men of the past 20 years, but for his work and teaching in Adelaide Ward His term in the out-patient's was short—barely five years—and during that time the work of the department increased rapidly and the accommodation for patients was enlarged from 20 to 28 beds, so that Dr Cullingworth, whose health was far from good, left him an increasingly active share in the ward work In 1901 he became full physician with charge of three-quarters of the beds Dr Cullingworth retaining one quarter only, and this continued till Dr Cullingworth s final retirement in 1904, after which Tate took sole charge

As a teacher it was the clinical side of the work that appealed to him, and chiefly gynæcology Midwifery never attracted him He held no appointment at a lying in hospital and his supervision of the outdoor maternity district was not of long duration and scarcely gave scope enough to distract his interest from the large share in the gynæcological work that fell to him He had excellent clinical insight and came rapidly to a clear opinion on his cases and it was this very faculty of quick decision that attracted students and was an important factor in his success in practice In addition he was a delightful operator to watch, and had marked manipulative skill and was intensely interested in all difficult surgical problems that arose in the course of his work—all of which appealed strongly to the students The amount of hospital work he got through was always a marvel to his house officers and dressers, as well as to those who knew what a busy private practice he had His teaching experience naturally led to his becoming an examiner and he acted for four years at the Apothecaries' Hall, for five years at the Conjoint Board and at the time of his last illness was serving as examiner at the University of Cambridge

He was never a prolific writer, though he was a frequent exhibitor of specimens and recorder of cases at the Obstetrical Society and later at the Obstetrical Section of the Royal Society of Medicine Pathology interested him only so far as it helped in diagnosis and treatment, and his writings reflect closely his bent towards the clinical side One of his early papers was on "Three Cases of Pyometra Complicating Cancer of the Cervix Uteri," published in the Obstetrical Transactions for 1897 Another paper read in 1904 on "Three Cases of Intestinal Obstruction following Operations for Fibroid Tumour of the Uterus, with special reference to the choice of operation," in which he advocated total hysterectomy rather than supravaginal amputation, gave rise to an interesting discussion Many short communications and descriptions of specimens and cases are to be found in the Obstetrical Transactions In the St Thomas's Hospital Reports are several papers from his pen, among them one on the Clinical Aspects of Tubal Gestation in the Early Months, and another on Cancer of the Uterus containing clinical observations on 50 cases treated by vaginal hysterectomy, an operation in which he had considerable experience and much success, though latterly he gave it up for the abdominal route Other papers on gynæcological subjects may be found in the *Journal of Obstetrics and Gynæcology of the British Empire* the *Practitioner*, and the weekly medical press, and doubtless, had he been spared to review his extensive hospital and private practice, he might have left more of his valuable experiences

Tate took a prominent part in the work of the old Obstetrical Society and of the Obstetrical Section of the Royal Society of Medicine He was first elected to the council in 1895 served as an examiner for midwives on the old examining board in 1898–99 filled the office of secretary in the years 1911 to 1913 and at the time of his death had just been elected President of the Obstetrical Section of the Royal Society of Medicine for the ensuing year

He married in 1896 the widow of the late Dr Anthony Dalzell, who survives him, there were no children of the marriage

THE ASSOCIATION OF INFANT WELFARE AND MATERNITY CENTRES —The fifth annual conference of this society was held last week in Bristol Dr D S Davies, the medical officer of health of the city, presided at the opening and welcomed the delegates Dr Eric Pritchard, the chairman of the National Association, in the course of his speech, stated that specialists were not as suitable for the work as well informed nurses and health visitors

PRESIDENCY OF THE ROYAL COLLEGE OF PHYSICIANS OF IRELAND —Earlier in the year the Royal College of Physicians of Ireland appointed a committee to consider the method of electing the President of the College The College has now received and considered the report of the committee, and at its last meeting passed a series of by laws designed to introduce considerable modifications in the mode of election. For more than 200 years it has been the custom in the College for the various officers to elect a President among the Fellows of the College resident in Dublin in order of seniority Since 1830 it has been the custom for the President to hold office for two years This method of election had much to recommend it when the number of Fellows was small, but in recent years the presidency tended to lose its dignity since it became a prize automatically awarded for mere longevity The College has now decided to make a real choice effective in electing the President In September of each year a ballot will be held for the selection of a panel of three Fellows as candidates for the presidency On the first Friday of October the College will, by a further ballot select one of the three for nomination as President and on St Luke's day the name of the Fellow so nominated will be submitted for formal election In the ordinary course the President will hold office for three years, but provision is made for a more frequent change if the College should so decide

Correspondence.

' Audi alteram partem

THE EFFECT OF FERRIVINE AND INTRAMINE ON SYPHILIS

To the Editor of THE LANCET

SIR,—Mr J E R McDonagh states in your issue of July 15th, in a letter with this heading, that I should not have made my objections to his theoretical views if I had read his work My delay in answering his letters is mainly due to the careful attention that I have given to his Hunterian Lectures, "Links in a Chain of Research on Syphilis (Oxidation and Reduction)," delivered in March, 1916 This is a book to which he specially refers, and we may suppose that it gives his latest conclusions The references in the following lines apply to pages in this work I can only say that my mystification is greater than ever When description is given of the various well known phenomena applying to the subject the statements are perfectly intelligible and correct It is only when he proceeds to give his own ideas that what appear to be the most extraordinary statements are made We might apply to the book as a whole the saying that "What is true is not new, and what is new is not true" Now, the difficulty that I feel is that, although quotations might be made from nearly every page whose incorrectness would be obvious to the physical chemist at a glance, yet it is not to be expected that readers of this journal would have had the opportunity or necessity to acquire a similar knowledge They have, indeed, so much other matter to take account of which is of vital importance in their work I must there fore limit myself to a few of the more obvious cases

The basis of Mr McDonagh's theories lies in what he calls "lipoid globulin molecules" or particles their vary ing distribution in the blood of normal and syphilitic patients and their presence in large amount in the parasites themselves These molecules are supposed to constitute an "oxidase-reducase system," and the whole edifice really rests upon this hypothesis or "fact" I am not prepared to deny the existence in the blood or elsewhere of such adsorption compounds, indeed, it is very probable But what is the evidence that they are endowed with the properties of oxidising or reducing enzymes? When I used the expression "selected," to which Mr McDonagh takes so much objection I had in my mind the possibility that the phenomena interpreted as due to oxidation and reduction might turn out to be at least as readily explicable on other hypotheses, especially as the complexity and obscurity of oxidation in the living organism so easily leads to misunder standing Doubtless I did not make use of quite the correct words My consideration of the small amount of experimental basis this view has confirms me in my opinion The evidence amounts to the presence of unsaturated carbon atoms in the lipoids of the com plex and to certain reactions to dyes As far as the former is concerned, the particles seem to be possessed of some degree of reducing power, but not a great one Curiously, the reaction to osmic acid was not tested. But even a considerable degree of reducing power does not imply catalytic activity as a reduction enzyme or reducase Oleic acid is not regarded as a reducase In the paper by McDonagh and Mackenzie-Wallis it is expressly stated that no evidence was to be found of the presence of an oxidase or a peroxidase in the particles Nevertheless, on p 19 of the "Links" it is said that peroxides and peroxidases form part of the system, the two together forming an oxidase As regards the behaviour to dyes, Unna's view of the definite relation of staining to oxygen places in the cell is accepted, notwithstanding that it has clearly been shown to be false by Drury[1] The adsorption of dyes is quite as complete in the absence of oxygen, active or molecular, as in its presence. I do not admit that processes of adsorp tion in the living organism are totally different from all other processes, nor that the case of charcoal and carbon dioxide is beside the point When the statement is made that adsorption *in corpore* differs from other forms, we m remember that staining *in vivo* is understood by McDon and Mackenzie Wallis as that of dried films Moreov alcoholic solutions are recommended for use Certain of staining reactions given as proof of reducing properties clearly connected with electrical charge, but the explanat of this error will be seen immediately

After having read the greater part of the book, it dawr upon me that many of the misconceptions in it are due to fact that the author regards as identical in nature no' o the OH groups in organic compounds and hydroxyl i (p 22), but also hydrogen peroxide (p 139) This latter represented as OH + OH (p 22) In another place (p 1 the OH group is considered to be a reducing agent The confusions lead to the putting forward of some rath astonishing chemical equations, such as the following —

$$R S S R + 2H + 4OH = R S + R SH + 2H_2O_2 + H \text{ (p 14}$$

The hydrogen ion is called here, by the author, "acti hydrogen," just as in other places (pp 139 and 179) t oxygen ion (O″), which is so rarely met with and even th in negligible quantity, is regarded as identical with acti oxygen It is scarcely necessary to point out that "active hydrogen" and "active oxygen" which are co cerned with reduction and oxidation processes not the io produced by electrolytic dissociation, although on p Mr McDonagh says that "active hydrogen is a kation and refers to "the negative charge that active oxyge possesses" What these forms of oxygen and hydroge really are is not known All that can be said as yo is that in some way their chemical potential is raised b the supply of energy, so that they are able to oxidise o reduce substances which the ordinary forms of thes elements are unable to act upon Active oxygen is no necessary for all oxidations, contrary to the statement o p 171 Atmospheric oxygen has a sufficiently high oxida tion potential to combine with pyrogallol, as every photo-grapher knows Dilute nitric acid is rich in hydrogen *ions* but has no reducing properties Ions must be looked upon as chemical compounds of atoms with electrical charges and therefore of a different *chemical* nature from the atoms themselves The globulin component of the "lipoid globulin particles" is, of course, as an amphoteric electrolyte, capable, at least potentially, of affording either hydrogen or hydroxyl ions, but this is a totally different matter from acting as a reducing or oxidising system For this latter statement, indeed, I can find no reference given to any experiments of a satisfactory nature The majority of the original statements in Mr McDonagh's book are, in fact, given without experimental evidence or reference to experiments made While many of these statements are clearly due to misconception, others may possibly be true, but they are at present quite incapable of experimental test since the means of doing so fails us

Other difficulties in the way of a clear comprehension of Mr McDonagh's views are due to his use of words in a sense which is not only different from that generally understood, but in some cases is unintelligible I will mention three *Permeability* is used by physiologists to refer to the properties of the cell membrane in connexion with the admission of substances to the interior of the cell, bu Mr McDonagh uses it in application to molecules (pp 6 and 76) The permeability of molecules is said to be increased by richness in carboxyl groups (p 117) on wha grounds I am unable to make out, in fact, I do not kno what the expression means *Electrolytic dissociation* is spoken of (pp 45, 62 and 101) as being something th happens to ions whereas ions are generally supposed to be the results of it The word "ionised," in the case o electrolytes in solution means the same thing, but Mr McDonagh uses it in a sense which puzzled me greatly unti I realised that a protein which possesses ions adsorbed o its surface is called by him 'ionised" (p 101) *Adsorp'n* should only be used to refer to condensation at interfa between phases and is a function of surfaces as such B Mr McDonagh evidently understands something differe although I cannot make out what it is This is shown by th assertion that active oxygen is necessary (pp 46 and 107) a ing as catalyst (p 52) I accept his explanation with rea to the effect of increased size of particles but in the "Link the fact of increased size and increased adsorptive capa are so frequently referred to without mention of increa

[1] Proc Roy Soc 83 B p 168

umber that I think my mistake was justified On p 35, ioreover, it is stated that in order to prove that the dsorptive capacity of the lipoid protein particles is greater i syphilis it is only necessary to show that these particles re larger In other places "adsorption" is merely chemical ombination, a trivalent metal is said to "adsorb" three atoms of hydroxyl ion" (p 114), and in amino-thio enzene the sulphur is said to be in a "more powerfully dsorbed state" when in the ortho-position as regards the mino-group (p 136) In this connexion it is curious to ote that Mr McDonagh prides himself on not introducing ew terms It would surely have been preferable to do so ather than to introduce confusion by using well known ones n ways peculiar to himself

I pass on to the new remedies introduced I am, of course ncompetent to discuss their clinical value, which is naturally ndependent of theories as to their mode of action But I eel convinced that great mischief will result, both to the heory and the practice of therapeutics if Mr McDonagh's iews are accepted on such slender evidence as that he gives lthough the importance of the subject may reasonably be ield to warrant the length to which this letter has already xtended, I must apologise for the space taken up How ver we may disagree with the interpretation put by Ehrlich n his discoveries, there can be no doubt that many aluable compounds and methods have been introduced by im, and that his work has led to great advances in science Mr McDonagh s attack on Ehrlich (p 120) because he atented salvarsan, although he was not engaged in medical practice is particularly ungenerous from a man who is ngaged in practice, but nevertheless allows the advertisenents now appearing in the medical press As to the uggestion on p 122 that the preparation of a substitute for alvarsan ought to have been handed over to one or more nedical men, I should like to know what medical man, with he exception of Mr McDonagh himself, would have been villing to undertake the duty A remark of an astonishing nature to a chemist is that on p 121, where it is said that or two substances to be "absolutely chemically the same, it s necessary that they should be prepared in exactly the same vay" So that glycine prepared by the hydrolysis of gelatin s not the same substance as when prepared by the action of mmonia on chloracetic acid and "ferrivine" is only to be ccepted as such when prepared under Mr McDonagh's direc ion "Intramine" is a representative of the large class of com ounds which contain sulphur in organic combination. They ertainly possess as a rule reducing properties, and intramine s used by Mr McDonagh for this reason But, as we have een his "oxidase reducase" theory has no real foundation s an interesting example of the mode of reasoning adopted ake the case given on p 150 where two injections of ntramine are described as being followed by extraordinary mprovement while a third dose resulted in a state worse han the original *one Galyl* a true organic compound f arsenic, was then given with remarkably beneficial ffects, practically amounting to cure This is said to e a proof of the theory of oxidation and reduction in that he arsenic compound as an oxidative agent was made ffective by the previous administration of a reducing agent The natural conclusion to be drawn is surely that intramine is seless while galyl is a valuable remedy We cannot in the present state of science give any explanation as to why certain metals have such powerfully toxic effects while others are harmless, but it may safely be said that it is not a question of valency The nature of organo-metallic compounds does not seem to be appreciated by Mr McDonagh The metal must be in organic combination, in direct union with carbon atoms. Such compounds *are not* subject to electro lytic dissociation with production of metallic ions, therefore the valency at all events in the sense used on p 130 as precipitating power does not concern us If this were so pentavalent arsenic would be more active than trivalent whereas according to the statements on p 130 it is less so We naturally ask what is the particular value of this *class* of compounds It cannot be stated exactly but it seems probable that the function of the organic part of the molecule is to facilitate passage through the cell membrane so that the metal may be presented to sensitive constituents in the cell without being in the form of an ion The presence of amino-groups favours this permeability Aniline for example is toxic because it enters the cell, sulphanilic acid does not enter and is innocuous There is I think some confusion introduced by the use of the terms "toxic" and "non toxic" with regard to remedies What we want, surely, is something which is toxic to the parasite and non-toxic to the patient, but we are unfortunately still in the dark as to what are the chemical and physical properties required I fear that Mr McDonagh s theories will not help us much.

Now iron in true organic combination is remarkably inactive as we see in hæmoglobin But do "ferrivine" and 'aluvine' contain the metals in organic combination? The names given on pp 146 and 147, "tri para amino-ferric benzene sulphonate," and so on, suggest that iron is in similar combination with the benzene nucleus as is arsenic in salvarsan, but when the formula is examined it is seen to be neither more nor less than the iron salt of sulphanilic acid and no organic compound of iron at all If the chemical name is given it ought to be ferric para amino-sulphonate or, more simply, ferric sulphanilate It is extremely unlikely that such a compound would have any special action different from an ordinary ferric salt The name manganese sulphanilate is used on p 144, so that I do not suggest that the misleading nomenclature is intended to deceive but content myself with calling attention to it If it were true, as Mr McDonagh states (p 167), that electrolytic dissociation is necessary for therapeutic action, organic arsenic compounds would be devoid of activity

The "Links, &c," has the effect upon me of a physico-chemical nightmare On p 191 we read "There is probably only one protein (in the resisting substance)—albumin, this by increasing the number of its amino-groups becomes globulin, by increasing its carboxyl groups it becomes lipoid globulin An increase of carboxyl groups results not only in making the reducing action greater, but also in increasing the size of the particle and rendering it more permeable, which results in that particle becoming less ionised" No wonder that, as we are told, the cell looks upon it as a foreign body after these astonishing transformations and that malignant disease results, as we read further on

Mr McDonagh does me the honour of stating his indebtedness to my "General Physiology" I trust that no more results of a similar kind will be laid to its charge, or I shall have to regret its publication In answer to Mr McDonagh's charge that I have not studied his research work nor repeated his experiments on serum I can only say that if he will give references to where the experimental proofs of his assertions are to be found I shall be happy to look them up As to experiments on serum, I have neither the time nor the necessary acquaintance with the special methods to be able to repeat them I have, in the course of the above remarks, given all the evidence I can find that the lipoid globulin is an oxidase reducase system and pointed out that it is unconvincing, and this is the foundation of his elaborate theory It is supposed to explain not only dyeing and staining and chemo therapy, but also immunity and anaphylaxis It is stated to follow "simply and logically" from "ascertained facts" and to be "deduced from established chemical and physical facts" (p 199) Let me give an example of what are regarded as facts On p 178 we read "Fever means an increase of hydroxyl ion concentration and therefore more oxygen Reduction is only a means of increasing oxidation, as it forms the peroxide necessary for the oxidase system" No reference is given to experimental evidence, yet the next sentence begins 'In view of these facts," &c The chemical equation given above is also a "fact" As to logical deduction, take the following (footnote on p 152) —

Intramine injected into the urethra causes a great increase of soluble phosphates and carbonates in the urine — These are the salts which regulate the normal hydrogen ion concentration of the external phase therefore this observation proves beyond doubt that intramine acts on the oxidase-reducase system

Mr McDonagh complains that I represent him as holding that lipoid globulin acts at the same time as an oxidase and a reducase On p 112 certain granules in the choroid plexus are stated to synthesise indophenol owing to the presence of active oxygen, and in the next sentence they are stated to have a reducing action due to the presence of active hydrogen On p 197 reference is made to the "fact" "that the adsorptive power of the active oxygen in the oxidase-reducase system is more marked than that of the active hydrogen" and on p 198 to "those lipoid globulin particles which are richer in active hydrogen than in active

oxygen" If any meaning is to be attached to these words they surely mean that active oxygen and active hydrogen are present together

To sum up, I hold that no proof has been given that the lipoid globulin particles form an oxidase reducase system, nor that oxidation and reduction play any part in the mode of action of the antisyphilitic remedies in question Mr McDonagh must find another foundation for his theories or give better evidence for that which he puts forward

I am, Sir, yours faithfully,

University College, London, July 18th 1916 W M BAYLISS

THE CARDIAC DISABILITIES OF SOLDIERS ON ACTIVE SERVICE

To the Editor of THE LANCET

SIR,—I must confess to a feeling of bewilderment not unmixed with dismay at reading the criteria of Captain John Parkinson in his inquiry into the cardiac disabilities of soldiers on active service in your issue of July 22nd If, indeed, we are to accept his sixth conclusion that the absence of abnormal physical signs in the heart of a soldier should not prevent his discharge from the Army if, under training or on active service he shows breathlessness or præcordial pain whenever he undergoes exertion well borne by his fellows, then inasmuch as during the past 16 months some 1400 men who would correspond exactly to this description have been sent to me for an opinion and have invariably been returned to full duty, the amount of irreparable damage I would seem to have caused in this time may well be described as overwhelming!

If I have read his impressions correctly, Captain Parkinson is disposed to regard the symptoms of præcordial pain and breathlessness on exertion as of not merely positive but supreme value, since he states that if such symptoms bear no relation to increase of pulse-rate on exertion, the latter is therefore valueless in judging the functional efficiency of the heart (Conclusion 4) Now, inasmuch as præcordial pain is entirely a subjective sensation, as a scientific standard it must surely be disregarded as of little, if any, worth The importance to be attached to breathlessness on exertion is again, in my opinion, exceedingly slight. The breathlessness of which such patients complain—men without abnormal physical signs—is not by any means a true dyspnœa It is shallow breathing, what is often termed lazy breathing, in fact a panting rather than an attempt at adequate respiration It can be improved out of all recognition by the imposition of strenuous breathing exercises and demands a species of physical discipline to which the subject has been hitherto entirely unaccustomed On the other hand, the reaction of the pulse-rate to violent exercise is an experiment which can be performed with perfect scientific exactness, and why such evidence of the heart's efficiency is not valid I am quite unable to see The malingerer will never have any difficulty in describing præcordial pain of all grades of intensity, it is not so very difficult for him to simulate breathlessness by shallow respiration, but it needs some art to adjust his pulse rate so that its return to the normal after exercise is unduly prolonged

As I have stated, on an average three men per day are sent to me with a history that they cannot do the square or fall out on parade on account of pain in the heart and getting out of breath I base my criterion of their cardiac efficiency on the rhythm the size of the heart and the reaction to violent exercise, and in the event of no abnormality being detected in any of these, I have no hesitation in excluding cardiac disease, and recommending such men for full duty whatever their symptoms, some of which will frequently disappear after dental treatment and the remainder by breathing exercises, persuasion, and reassurance I frequently hear from medical officers to whom such recommendations have been made that the men have trained on without further trouble. Of course, such a description does not apply to all of Captain Parkinson's cases of 'soldier's heart,' some of which are clearly instances of organic cardiac disease. On the other hand, some are very evidently of the type to which I am referring—faint-hearted in the spiritual sense, who have never been able to play games, and tend to give up at the least discomfort upon unaccustomed exertion

The question is one of great importance from two points of view The invaliding of a large number of men who with persuasion might have made efficient soldiers is, of cou a serious loss to the active force In the second place, act of boarding out as unfit for military service on grounds of some cardiac disability is a serious burden their future life to men to whom such a diagnosis has other meaning than heart disease with the constant dan of sudden death

I am, Sir, yours faithfully,

ADOLPHE ABRAHAMS

Temporary Captain R A M C Officer in Charge of Medical Divisi Connaught Hospital Aldershot.

Aldershot, July 22nd 1916

CONDENSER DISCHARGES IN PHYSIOLOGICAL EXPERIMENTS

To the Editor of THE LANCET

SIR,—Dr F Hernaman Johnson writes in your issue July 15th on the subject of condenser discharges, and ur physiologists to abandon the use of an instrument notoriously incapable of standardisation as the inducti coil If he will read the numerous papers on electric stimulation which have been published by Nernst, Wei Hoorweg, Professor and Mme. Lapicque, Keith Luc A V Hill, and others, he will see that the merits of t condenser discharge have been recognised by physiologi for 15 years or more, and that it is by no means the m instructive or the most easily controlled form of stimul Indeed modern theories of stimulation have been arrived mainly by the use of progressively increasing currents a of constant currents of short duration though it is true th experiments with condensers have contributed materially t the present state of our knowledge In many experimen it is quite unnecessary to vary the time relations of the di charge, and in this case the break shock of an inductio coil is often the most satisfactory form of stimulus necessary it can be calibrated with very great accuracy That the ordinary medical coil is incapable of standardis tion is scarcely the fault of physiologists

I am, Sir yours faithfully,

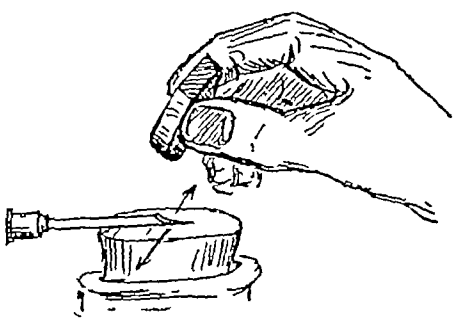
E D ADRIAN, M B, B C Cantab

Farnborough, Hants, July 18th 1916.

THE SHARPENING OF HOLLOW NEEDLES

To the Editor of THE LANCET

SIR,—The following may be of use to your readers wh have occasion to use hollow needles very much and hav trouble with keeping them in repair Procure through a ironmonger, or from a dealer in the carborundum wares slip No 89 Sharpen the needle by holding it on a support, such as a cork in a bottle lumen upward, and shank level



and rubbing it at right angles to the axis of the needle the round edge of the slip till a hollow ground effec obtained. Then lightly touch the back edges of the l on the flat of the stone to get rid of the rough edge an obtain a sharp point. This answers excellently for all s and natures of hollow needles, from hypodermic sizes aspirator or pneumothorax instruments The slips 1s 6d When new they are rather too fierce, and ma dressed by soaking in a fairly viscous oil, such as liq paraffin, for a few hours After that they need only a li dressing of oil to make them do their work, and no oil at for platinum iridium instruments The sharp edge of

[1] Cf Martin American Journal of Physiology 1912-1915.

lip is ideal for notching the necks of capsules containing accine and serums previous to opening

I am, Sir, yours faithfully,
EDWARD BIGG

Nordrach-upon Mendip Blagdon Bristol July 9th 1916

ELECTROLYTIC HYPOCHLORITE SOLUTION FOR SURGICAL USE

To the Editor of THE LANCET

SIR,—The credit of discovering that hypochlorite solutions are rendered more permanent by the use of magnesium hydroxide in a state of "gel" is due to Mr F W Alexander,[1] medical officer of health of Poplar

During the past year many experiments have been made, and the following method affords a reliable solution for surgical use Magnesium chloride ($MgCl_2$ 6 aq) 410 grammes and sodium chloride 325 grammes are dissolved with 1 5 grammes of potassium iodide in 9 litres of water To this mixture magnesium chloride 20 grammes dissolved in water 500 c c , and mixed with constant stirring to sodium hydroxide 8 grammes dissolved in 500 c c of water is added The turbid solution of chlorides and iodide with the suspended "gel" of $Mg(HO)_2$ is then electrolysed with a flow of 1 litre per hour under a current of 3 to 5 ampères by means of thin Pt foil electrodes of 8 cm. by 2 cm. area A permanent solution of hypochlorite yielding 3 5 to 4 5 grammes of available chlorine per litre results The strength is estimated before sending to the wards by titration with decinormal arsenic solution Magnesium chloride is obtainable at about 3*d* per lb , and the current is taken by a shunt from the constant current in use for lighting the hospital. When the alternating current is used a small aluminium and ammonic phosphate rectifier is interposed For use the solution is diluted with 3 parts of warm water, and in some cases sodium citrate has been added

I am, Sir, yours faithfully,
T GODDARD NICHOLSON, B Sc , M.B Lond , M R C S

London Fever Hospital N July 9th 1916

THE ADDRESS OF MEDICAL PRACTITIONERS SERVING IN THE ARMY

To the Editor of THE LANCET

SIR,—Practitioners now serving in the R A M C may wish to know what address to give for the next issue of the Medical Directory As the military address is liable to change and as they may return to civil practice unexpectedly, we recommend the insertion of the home address only —We are, Sir, your obedient servants,

THE EDITORS OF THE MEDICAL DIRECTORY

7 Great Marlborough-street London, W July 26th, 1916

[1] THE LANCET Jan 18th 1913, p 157

Mr T E Gordon, F R C S Irel , senior surgeon to the Adelaide Hospital has been appointed professor of surgery in Trinity College, Dublin, in succession to Mr E H Taylor Mr Gordon is not required to perform any duties at Sir Patrick Dun s Hospital

ISOLATION HOSPITAL FOR PAIGNTON (DEVON) —A new isolation hospital is being erected for Paignton at a cost of £3200 It is nearly completed, and will shortly be opened

TUBERCULOSIS IN BELFAST —In reference to the work done at the Tuberculosis Institute Belfast a series of interesting tables have been submitted to the Tuberculosis Committee of the council of the county borough of Belfast by Dr A Trimble, the officer in charge, showing the work done in that department for the year ended March 31st 1916 1587 pulmonary cases were treated for tuberculosis at the dispensaries and 206 non pulmonary In the sanatoria and hospitals provided by the council 631 pulmonary and 10 non pulmonary cases were treated, while in sanatoria and hospitals otherwise provided (Union Infirmary and Forster Green Hospital) 369 pulmonary and 1 non pulmonary patients were received Under the head "Treatment otherwise than in Dispensaries and Sanatoria (including Domiciliary Treatment)" there were 1410 pulmonary and 208 non pulmonary cases Altogether 4422 cases were treated for various forms of tuberculosis in Belfast during the year ended March 31st, 1916. The population of Belfast is now close upon 400 000

The War.

THE CASUALTY LIST

THE following names of medical officers appear among the casualties announced since our last issue —

Killed

Captain J D H Acland, R A.M.C , attached to the Somerset Light Infantry, was a student at St Thomas's Hospital, London, and qualified in 1905 Previously to returning to England to join the R.A.M C soon after the outbreak of the war, he was medical officer of the Government Schools at Bulawayo, South Africa

Captain T Guthrie New Zealand Army Medical Corps

Captain H G Morris, R A.M C qualified M B , B Ch Oxon in 1914, and shortly afterwards joined the R A.M C

Lieutenant R F T Newbery, R.A.M C , attached to the Northamptonshire Regiment, qualified M.B , Ch.B Edin in 1915, and after holding house appointments at the Edinburgh Royal Infirmary for a short period he joined the R A.M C last October

Previously reported Wounded now reported Killed

Captain G R Heard, R A.M.C , attached to the Royal Warwick Regiment, was a student at the London Hospital, qualifying in 1909, and was in practice at Devonport prior to joining the R A.M C

Died of Wounds

Captain R W Michell, R A.M C was educated at Cambridge and at St Bartholomew's Hospital, London, qualifying in 1894, and was in practice at Cambridge before joining the R A.M C on the outbreak of war

Died

Colonel Sir V A. H. Horsley, C B , F R S (see Obituary columns)

Lieutenant S W Burrell, R A.M C , was a student at St Bartholomew's Hospital, London, where he gained the Warham prize for surgery, and qualified in 1915

Surgeon E W Welchman, R N , was educated at Queen's College, Birmingham, qualifying in 1883, and was in practice at Lichfield before becoming a surgeon in the Admiralty Transport Service

Wounded

Lieutenant R M Rowlette, R A.M C , attached to the Irish Guards

Captain H. B Thomason, R A.M C

Lieutenant G J Fraser, R.A.M C , attached to the Northumberland Fusiliers

Captain H N Goode, R.A.M C

Captain A. Hamilton, R.A M C , attached to the West Yorkshire Regiment

Captain C A. Bernard, R A.M.C , attached to the York and Lancaster Regiment

Captain T W David R.A.M C

Lieutenant C B Davies, R.A.M C

Captain L D Shaw R A M C

Captain J A. Cole, R A.M C

Captain P Walsh, R.A.M C , attached to the Royal Welsh Fusiliers

Captain R M Miller, R.A.M C , attached to the Royal Welsh Fusiliers

Captain W A. Coats, R A.M C , attached to the Essex Regiment

Lieutenant M G Pettigrew, R.A.M C , attached to the Welsh Regiment

Captain F Sanders, R A.M C , attached to the Essex Regiment

Captain H P Whitworth, R.A.M C

Captain W K. Campbell, R A M C

Captain F E Chapman, R.A.M C , attached to the Royal West Kent Regiment

Captain S W McClellan R A M C

Lieutenant M McNiff, R A.M C , attached to the Middlesex Regiment

Captain J P Charles, R A.M.C , attached to the Highland Light Infantry

Captain D H Derry, R A.M C , attached to the King's Royal Rifle Corps

Captain D J Evans, R.A.M C

Captain C F Hacker, R A.M C , attached to the Hertford Regiment

Captain F W A. Ponsford, R.A.M C , attached to the East Surrey Regiment

Captain C R Wills, R A M C , attached to the Sherwood Foresters

Previously reported Missing now reported Prisoner

Captain W R W Haight, Canadian A.M.C , attached to the Canadian Mounted Rifles

OBITUARY OF THE WAR

JOHN CECIL RIX, M R C S ENG,

CAPTAIN ROYAL ARMY MEDICAL CORPS.

Captain J C Rix, who was killed in action in France on the night of July 5th–6th at the age of 40, was the fourth son of the late William Howells Rix, of Tunbridge Wells From Tonbridge School he entered Trinity College, Cambridge, graduating B A in 1898, and continued his medical studies at the Middlesex Hospital, qualifying M R C S in 1902 He then joined his father and uncle in practice at Tunbridge Wells, where he became medical officer to the Convalescent Home and to the Invalid Children's Aid Association He also acted for a time as medical officer of health and was police surgeon and school medical officer He was much liked by the police of the town, who made him a presentation when he gave up this appointment Captain Rix joined the Royal Army Medical Corps in April, 1915, and was gazetted captain a year later He met his death from the effects of a shell explosion while he was attending to the wounded outside his first-aid station His kindly disposition and genial manners had made him a general favourite in both official and social life, and his death is much deplored by his comrades Captain Rix was unmarried

GEORGE OLIVER MAW, M R C S ENG,

CAPTAIN ROYAL ARMY MEDICAL CORPS

Captain G O Maw, who died in France on July 10th, at the age of 29 years from wounds in action, was the only son of George Maw, M R C S, of Shortlands Kent. He was educated at St Andrew's School, Eastbourne, and at Clifton College, going on to Pembroke College Cambridge After taking a first class in the Natural Science Tripos in 1909 he continued his medical work at St Bartholomew's Hospital, where his studies were unfortunately interrupted by a very long and serious illness which ended in a successful operation at the hands of Sir Victor Horsley He passed the Conjoint Examination in 1912, and being prevented by the war from completing his examination for the M B Cambridge took appointments as house physician for six months at Bedford County Hospital and as house surgeon for a year at the Metropolitan Hospital In January, 1915, he obtained a commission in the R A M C remaining in France until the time of his death His fatal wounds were received while attending to injured men in the open and he died on his way to the ambulance

One of his oldest friends, who was in the same house at school and in the same College at Cambridge, writes of Captain Maw "I knew him well enough to appreciate his worth, his absolute truthfulness fine character, and keenness in his work His pluck was phenomenal, as we all knew long ago at the time of his operation In dying for his country he crowns his well spent young life, and we who mourn him will also rejoice that he has done all a man can do"

EDWARD WILLIAM LAWRENCE, M B, CH B EDIN,

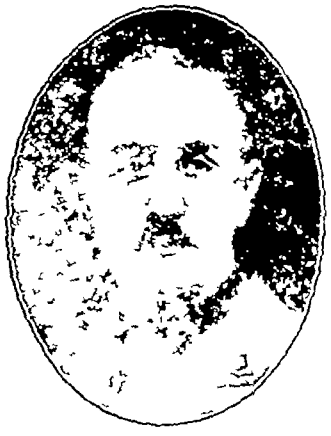
CAPTAIN ROYAL ARMY MEDICAL CORPS

Captain E W Lawrence, who was killed on active service in France on July 10th at the age of 28 years, was the eldest son of Mr A J Lawrence of Pontycymmer Glamorgan He was educated at Christ College Brecon, and University College, Cardiff, and took the medical course at Edinburgh University where he graduated in 1910 After some experience as assistant in general practice and house appointments at the Royal Gwent Hospital, Newport, he entered into partnership with Mr Wyndham Randall at Bridgend On the outbreak of war he volunteered his services and obtained a commission in the Royal Army Medical Corps, becoming senior medical officer to a brigade at Rhyl and then going with the University Battalion to France, where he remained until his death Fellow officers in writing to his partner describe Captain Lawrence as a general favourite in his mess He exposed himself freely to danger in the performance of his duties and it is added, "would go anywhere nothing would stop him"

ALEXANDER STANGER SEABROOKE, M B, B C CANTAB,

CAPTAIN ROYAL ARMY MEDICAL CORPS

Captain A S Seabrooke, who died in Mesopotamia on July 1st from typhoid at the age of 31, was the second son of Mr J Seabrooke, of Grays Essex He was educated at Tonbridge School, where he became head of his house and at Christ's College, Cambridge, entering heartily into the life and spirit of the University He was a member of the Mounted Infantry Corps Entering Guy's Hospital in 1908, he had a successful academic career, and was recognised as a man of strong character, who inspired confidence in those with whom he came in contact After qualifying in 1912, he held house appointments at his hospital for two years, surrendering the post of resident obstetric physician in 1915 to join the Royal Army Medical Corps He soon became attached to the Rawal Pindi Hospital, with which, in November, 1915, he was transferred to Mesopotamia, where he remained until his death



One of his hospital intimates writes of Captain Seabrooke "A man of fine physique and an appearance which befitted his strong character it is no exaggeration to say Seabrooke was one of the most popular men of his time at Guy's. His sympathy took practical forms he was in the habit of visiting his old patients who were too feeble to attend at the hospital in their homes, giving them both advice and financial assistance Whilst on active service he wrote letters of condolence

to the relatives of any soldier under his care who died. He corresponded regularly with his friends, and his letters were full of human interest In the last of these, referring to the death in Egypt of one of his friends at Guy s, he says 'He was a good fellow and if one has to die, it is some satisfaction to one s people that one died doing one's duty' Duty self-sacrifice, and a consideration for others were Seabrooke s watchwords, and will keep his memory green in the hearts of the many sorrowing friends whom he leaves behind."

DEATHS AMONG THE SONS OF MEDICAL MEN

The following sons of medical men must be added to our lists of those who have fallen during the war —

Lieutenant J H Parr Dudley Royal Fusiliers eldest son of Dr A D Parr Dudley, of East Malling Kent

Major V L S Beckett Yorkshire Regiment, youngest son of the late Dr F N Beckett of Ely, Cambs

Second Lieutenant A E G Mason, Leicestershire Regiment second son of Dr H Mason, of Leicester

Lieutenant T M MacQueen East Lancashire Regiment, second son of Dr T MacQueen, of Eastbourne

Major C G Phillips King's Own Regiment, younger son of the late Dr R Phillips of Bromley, Kent

Private M P H Blumer, Middlesex Regiment, only son of Dr P Blumer, of Muswell Hill London, N

Second Lieutenant W E Limont, Northumberland Fusiliers, only son of the late Dr J Limont, of Newcastle-on Tyne

Captain W J MacCombie King's Own Scottish Borderers only surviving son of Dr J MacCombie, of Rothwell Northants

Second Lieutenant E P Doyle eldest son of Dr E A. G Doyle of San Fernando Trinidad

Captain C V Suckling Royal Warwickshire Regiment, younger son of Dr C W Suckling of Edgbaston, Birmingham

E T D Fooks, Machine Gun Company New Zealand Forces, youngest son of Lieutenant-Colonel Fooks, I M S

AUXILIARY R A M C FUNDS

A general meeting will be held in the Lecture Theatre of the Royal Army Medical College, Grosvenor road, London, S W, at 2 45 P M, on Monday, August 7th, at which the Director General will preside It will be remembered that at a meeting held on June 26th it was decided to postpone consideration of the scheme formulated by a Provisional Committee[1] until the constituency had had a full opportunity of discussing its provisions A large attendance of officers is desired at the forthcoming meeting in order to deal adequately with the important business which is to come up

SCOTTISH MEDICAL SERVICE EMERGENCY COMMITTEE

The Executive Committee having authorised the issue of the first call under the new system arrangements have been made for hearing those who desired to put forward reasons for postponement Sheriff Fleming, K C, outlined the method of procedure to be followed, and referred to the very special responsibilities which had been placed on the medical profession The President of the Royal College of Surgeons presented the list of the suggested staff of an Edinburgh Hospital for service abroad Its formal approval completes the Scottish Hospital contingent the Glasgow and Aberdeen hospitals having been approved at previous meetings

BRITISH INTERNED PRISONERS OF WAR.—We hear from a member of the Swiss Commission appointed to visit the prisoners camps in Germany that about 1000 British prisoners have been selected These will have to pass a second commission but it is hoped that 800 or 900 will shortly be interned in Switzerland, bringing up the total to 1200-1400

MEDICAL IMPRESSIONS OF THE GALLIPOLI CAMPAIGN —In the current number of the *Journal of the Royal Naval Medical Service* Temporary Surgeon J N MacBean Ross R N gives the impressions of a battalion medical officer on the medical conditions of the Gallipoli peninsula between September 1915 and January 1916 The amount of sickness was such that all the sick men could not be sent to field ambulance and hence every man who could carry on at all was kept with his battalion and treated by its medical officer The sick-bay in the rest-camp consisted of only a small dug out, with nothing more substantial than ground sheets laced together to keep out rain, wind, and shells, and under these primitive conditions cases of dysentery, diarrhœa, paratyphoid, jaundice, trench fever, frost-bite and nephritis were treated with the results which the writer relates He thinks that the description of the course of the numerous cases which were not sent to hospital may give the reader a clearer conception of the real severity of certain war diseases

TREATMENT OF LIMBLESS SOLDIERS —It is announced that the Army Council has decided to accept the offer of the Committee of the Ulster Volunteer Force Hospital to give that place as an institution where limbless soldiers can be received and treated

A RED CROSS REST-HOUSE AT HOBART —At the suggestion of Sir Ellison Macartney, Governor of Tasmania, a rest-house with 20 beds and a day accommodation for 100 soldiers is being established at Hobart by the Red Cross Society

A HOSPITAL FOR CANADIAN OFFICERS —A new hospital for Canadian officers at Putney Heath, presented by Mr W Perkins Bull K.C, containing 35 beds, was opened on July 19th by the Lord Mayor of London. Surgeon General Jones, who was present at the opening, expressed the gratitude of the Canadian Army Medical Service for the gift Intended primarily for Canadian officers, the hospital will also be open for officers of the Imperial Service generally

THE EMPLOYMENT OF WOMEN DOCTORS IN MILITARY HOSPITALS —The War Office has for long past utilised the services of women doctors as bacteriologists and radiologists As the need of medical officers steadily grows, the openings for women in military hospitals widen Some 40 medical women have recently been chosen for foreign service of whom a number are to go to Malta. All of these possess special qualifications for the work to which they have been allotted. An American qualification has in special instances been recognised.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND —At the Preliminary Science Examination for the Licence in Dental Surgery held on July 18th, 20th and 21st, the following candidates were approved in the undermentioned subjects —

Chemistry and Physics —Fanny Henriette Bachrach London School of Medicine for Women Harry Charles Blackmore Polytechnic Institute Arthur Leslie Buswell Taunton School, Henry Valentine Croucher Guy's Hospital Nathaniel Gerson London Hospital Herbert Oliver Holmes Guy's Hospital Frederick Laurence King Central Foundation School Malcolm John Matley Moore Municipal Technical School Birmingham Charles Lindley Donald Pasmore Technical College Swansea Edward Reinhold Pfaff Bristol University and Harry Mullins Worth University College Exeter

Physics —Levi Austin Bevan, University College of North Wales Bangor George Bernard Burke Technical College Finsbury Allistair Hyland Grieve, Birkbeck College and Herbert Augustus Spouse special study

Chemistry —Jamshed Bejunjee Chenoy Royal Dental Hospital.

LONDON SCHOOL OF TROPICAL MEDICINE —The following were the successful candidates at the examination held at the termination of the fifty first session (May-July, 1916) —

*H L. Cumming and K. T Jungalwalla (with distinction) J B Flamer-Caldera, S C Biswas J T Watt, G T Makhijani and Miss L N Clough

* Dr Cumming gains both the 'Duncan" and *Lalcaca*" medals The former is awarded to the student who obtains the highest aggregate of marks for the session the latter being awarded to the student who gains the highest marks for the academic year

SOCIETY OF APOTHECARIES OF LONDON —At examinations held recently the following candidates passed in the subjects indicated —

Surgery —C P Barber (Section I) Charing Cross Hospital and G A. Crowe (Sections I and II) and H M Hobson (Section II) London Hospital.

Medicine —H T Lamb (Sections I and II) Guy's Hospital and Manchester E O Morrison (Sections I. and II) Cambridge and S Mary's Hospital and S L Szpiguer (Section I), London Hospital

[1] THE LANCET June 24th, p. 1200.

Forensic Medicine.—H T Lamb, Guy's Hospital and Manchester and S L Spigner London Hospital

Midwifery—J L D Buxton University College Hospital A. L. Malabre Washington J S Matthews University College Hospital A. McL. Pickup, Birmingham and E J G Sargent, St Bartholomew's Hospital

The diploma of the Society was granted to the following candidates, entitling them to practise medicine surgery, and midwifery:—G A. Crowe, H T Lamb and A L. Malabre

UNIVERSITY OF SHEFFIELD —At examinations held recently the following candidates were successful —

Final Examination for the M B Ch.B Degrees—Frederick Gamm Lydia M Henry Frederick G E Hill George K. E Inman Florence E Millard Robert H Rae and William Sharrard.

Third Examination for the M B, Ch.B Degrees—Mary Andrews Annie Clark, Ethel M. Mathews, and Winifred H Wells (distinction in Pathology and Pharmacology)

First Examination for the M.B, Ch B Degrees—Constance M Chappell (distinction in Chemistry), Edgar S Clayton, and Richard T Lee (distinction in Chemistry)

ROYAL COLLEGE OF SURGEONS OF EDINBURGH —At a meeting of the College held on July 20th the following having passed the requisite examinations were admitted Fellows —

Ivan Wanless Dickson M B Toronto Univ, M C P & S Ontario, M R.C S Eng L R C P Lond George Hamilton Ross Hamilton M B Toronto Univ, M C P & S Ontario William Howard Thomas M.B B S New Zealand; Henry Richard Hodgkinson M B M S Sydney Wesley John Jenner L R C S Edin (Triple Qualification) Bireswar Mitra, L M.S Calcutta, M R C S Eng L.R C P Lond and Charles William Sharp L R.C S Edin (Triple Qualification)

QUEEN'S UNIVERSITY OF BELFAST —At the summer graduation ceremony of Queen's University, Belfast, held on July 11th, reference was made alike to the number of professors, lecturers, and students who were serving in various parts of this widespread war, as well as to those who had received special distinction, like Captain J A. Sinton, M B, of the I M S, who gained the coveted V C, and last, but not least, to those who had fallen Among the latter were the names of F L Cleland, M B, captain, R A M C, B C Letts, M B, lieutenant, R A.M C, T D Liddle, M B, staff surgeon, R N, H F McNally, M B, surgeon, R.N, and F J Wisely M B, lieutenant, R A M C —At examinations held recently the following candidates were successful —

FIRST MEDICAL EXAMINATION

Botany and Zoology—Marion C Alexander Frederick M Allen Victor D Allison, Eileen O Bartley Walter E Beck Joseph F Blaine John W Bradbury James S Briggs Cawthorne L. Broomhead Robert J E Christie Henry H. Coulter Martha J Craig Alexander Cromie, Robert L Dodds William F Donaghy John S Dudgeon John H Duke, Robert Duncan, John H. Dunn Abraham E Elliott, Maurice G Emery Patrick J Flood Helen R Forbes Patrick L. Fullen James F Gaussen Thomas Gilfillan Winifred E Hadden, Henry Harris, Patrick J Honan Thomas J Hull Lydia N Humphreys, Richard H Hunter Gilbert M Irvine Thomas R. V Irwin Robert S Johnston Winifred M Johnston James W Kernohan James S J Lee Sydney W T Lee, Daniel V McCaughan Dorothy M McCullagh Philip J McGarry John J McKane, Robert J McMullan Beattie McNeill Henry McNeill, Eveline F Magee, James P Martin Joseph Meban Elizabeth Michael Horatio N Middleton Philip F Mooney Edward Moore, John W Nesbitt, James J O'Reilly John Patton, Robert Pedlow John D Reynolds, Joseph Reynolds Frederick W Robinson, James Scott, Laura G H Scott William J Simpson, Arthur C Sinclair George T W Sloan Samuel H Stewart, Kathleen R Snodgrass Margaret W Snodgrass, Samuel A M Thompson and James B Wiley

Chemistry and Physics—Marion C Alexander John Cavanagh Wm E D Crawford Robert L Dodds Patrick J Flood, Charles L. Graham Henry Harris Thomas J Hull Dorothy M McCullagh James P Martin Joseph Meban John W Nesbitt, Martha Reid (Chemistry only) John D Reynolds, Joseph Reynolds, James Scott, and Arthur C Sinclair

SECOND MEDICAL EXAMINATION

Anatomy and Physiology—William R Abernethy, Samuel Ballantine John Black Crawford Blair, Helen M. Calwell James Camac, Hugh Carson, John Caruth Jane Copes (Physiology only) David Cromie Eric A. Davison Winnifred A. I M Doherty Benjamin Herbert, Alexander MacFaul Thomas H McKenna, Robert J McNeill Olive Maxwell, Helen M Murnane (Physiology only) Robert Nimmons David G Roulston Margaret H Russell Alex McM. W Segerdal Samuel Simms, Samuel Y Sterling, Hugh J Taggart, and James B Wilson.

THIRD MEDICAL EXAMINATION

Medical Jurisprudence and Hygiene—Herbert Abernethy John Barron Annie E E Beattie Fredk. C S Bradbury Samuel F Breakey Frederick Campbell Thomas I Candy Gladys E Chambers Janie Clarke Joseph M Clearkin Gerard J Crawford Samuel E Duff Charles W A Emery Stewart Fullerton John Grimson, Samuel Hall John M Hosey Mary E Irwin Albert E. Keown Michael G Kierans, Joseph G M. Leyden William J Lyttle, Amy C McCallum, John McGarvey, Daniel McLister Henry F Macauley Edward A. Maguire, John A. Martin Thomas Montgomery Patrick J Murnane David A. E Scott, Ruth M Slade, and Samuel J Smyth.

Pathology and Materia Medica—Herbert Abernethy, John F Ainley Annie E E Beattie, Frederick C S Bradbury Samuel F Breakey Frederick Campbell Thomas I Candy Gladys E Chambers, Janie Clarke Gerard J Crawford, Samuel E Duff William Graham, William Harvey Mary E. Irwin Albert E. Keown Michael G Kierans William J Lyttle Amy C McCallum John McGarvey William C McKee Daniel McLister Henry F Macauley Edward A. Maguire, John A. Martin, Thomas Montgomery David A. E. Scott, and Samuel J Smyth.

M.B B CH. AND B.A.O EXAMINATION

William F Algeo, James Boyd (second class) William Bryars Alfred G P Campbell, George Chesney Alfred C Dickey Grace M. English (first class) Francis Ewart (second class) Hugh E. Hall, James A. Harbison, Arabella C Kirker Nathaniel McCullough, Joseph P McGinley (first class) Bernard W McKinney (second class), Michael McMenamin Frederick McSorley John J Marner, Thomas J Marner, David Mitchell (second class) Elizabeth M. Moore, Margaret S Purce (first class) Charles A W Ramsay Robert J Rea, William Saunderson Thomas R. S Thompson, Norman C L. B Tweedie, and John H Vance

M D Degree—William W D Thomson (gold medal) and James M. Warnock

Diploma in Public Health.—Alexander E Knight William J MacKeown and Charles J Milligan

TRINITY COLLEGE, DUBLIN SCHOOL OF PHYSIC—At examinations held recently the following candidates were successful —

PRELIMINARY SCIENTIFIC MEDICAL EXAMINATION

Physics—Joseph Eugene Deane William Randolph Macnie John Richard Waugh Salman Louis Feldman Harry Cristol Dundon and Mary Horan (equal) Joseph Hirschman and Robert Sturgeon Chapman and John Joseph Martin (equal)

Chemistry—Maurice Nurock, Eric Henry Cooke Allen John Lait, Janie Millar Cummins David John Browne Francis Victor Small, Leonard Abrahamson William James Alexander Russell and Robert Henry Mulhall Corbet (equal), James Alexander Smith Doris Louisa Graham Isaac Levy Robert Dormer and Percival Israel Levitt (equal) William Randolph Macnie and Eric Richard Murray (equal) Joseph Ballantyne Maguire Samuel Wallace Jamison and David Samuel Thomson (equal), Robert Sturgeon Chapman and Thomas Donald Gordon and William Bernard Pemberton (equal) Harry Cristol Dundon Moira Mary Brown and Richard Victor Dowse and Essie Stuart Smyth (equal) Olive Baile Christopher John Lawrence Brock and John Richard Waugh (equal), Salman Louis Feldman William Burton Fox and Herbert Francis Mooney (equal) and James Joseph Patrick Kelly

Botany and Zoology—Annie Gwendoline Holmes Orr Eric Henry Cooke Allen and Alice Elizabeth Lawlor (equal) Francis Small William Bernard Pemberton Robert Henry Mulhall Corbet Frederick William Shegog Essie Stuart Smyth Edmund Cyril Smith Albert Edward Dunscombe Phillips David John Browne Sybil Gertrude Odlum, Doris Louisa Graham Maurice Nurock Winspeare Toye Hungerford Emily Elspeth Grace Baillie Leonard Abrahamson William Burton Fox Hector Charles Chatterton Deane Dorothy Stopford Ernest Edmondson Benson and Doris Holland (equal) Francis Malone-Barrett and Robert Henry Batchwell (equal) Robert Dormer Herbert Francis Mooney and Edith Florence Willock (equal) Percival Israel Levitt Samuel Wallace Jamison and Vera Gladys May Menary (equal), John Lait Cecil Samuel Wilson William James Alexander Russell James Joseph Patrick Kelly Dermod Hubert Francis Milmo Moira Mary Brown and Olive Baile (equal) Robert Young Crichton and Joseph Ballantyne Maguire and Herbert William Strong (equal) Elsie Anna Burns and Leo Vincent Clifford (equal) John Collins Blair, Margery Bouchier Hayes and James Robertson Wills (equal) Patrick Mary Joseph Bobbett and Joseph Hirschman and Frederick Wynand Plenaar (equal) Christopher John Lawrence Brock Isaac Levy Henry Ignatius Emmet Powell and Edward Haslett Frazer

INTERMEDIATE MEDICAL EXAMINATION PART I

Anatomy and Physiology—Cecil Emrys McQuade Richard Counihan John Henry Brenell Crosbie, Abgar Read Aidin Frederick William Robertson, John Gerard Holmes John Charles Callanan Noelle Long Richard Wood Power Russell Warren William Swirles Allardyce and James Sinclair Quin (equal) John Coolican and Thomas Madill (equal) Becher FitzJames Haythornthwaite Albert Hugh Thompson Victor George Walker Johannes Tobias Mynhardt and Cecil Quinlan and Richard William Shaw (equal) William Joseph Hogan Alfred Beckett Louis John Murphy (Physiology completing examination), and Richard Dominick Murphy (Physiology only)

INTERMEDIATE MEDICAL EXAMINATION PART II

Applied Anatomy and Applied Physiology—Frederick Gill Joseph Posner Frederick William Godbey Louis John Murphy Eric Reginald Tiry Francis S G Battersby and Cecil Keller

FINAL MEDICAL EXAMINATION PART I

Materia Medica Pathology Medical Jurisprudence and Hygiene.—William Robert Fearon Edward D Arcy McCrea, Thomas Scannel McDonald James Arthur William Cullen Thomas Mulock Bentley Charles Going Ambrose Edward Francis Wilson, Paul Herbert Shelley Smith William Joseph Hamilton Meta Grace Jackson Thomas Tabuteau, Patrick Casey Herbert James Wright Percy Crowe Parr John Edmund Hill Fleetwood William Porter Sullivan (Medical Jurisprudence and Hygiene completing examination) Cedric Cowan Meeredy (Medical Jurisprudence and Hygiene completing examination) Margaret Wolfe (Materia Medica and Pathology) Arthur Leslie Gregg (Materia Medica, Medical Jurisprudence and Hygiene) Bryan Austin McSwiney (Materia Medica, Medical Jurisprudence and Hygiene) and David Shields Prentice (Materia Medica, Medical Jurisprudence and Hygiene)

FINAL MEDICAL EXAMINATION PART II

Surgery (B Ch.)—Thomas Paul Chapman Andries Adriaan Louw Albertyn Charles Henry Comerford John Armstrong Crozier Kidd, Philip Augustus Hall and Edward Oswald Marks (equal) Rupert Montgomery Butler Gordon and Alfred Henry Price (equal) Codric Cowan Meeredy Herbert Stratford Collins, Thomas Stanton Violet Mabel Deale Sydney Verner Furlong Robert William Pritchard Charles Owen James Young Marie Annette Hadden and Edward Lipman and Crosbie Weir (equal) Esther Violet Adderley and Herbert James Wright

Medicine (M B)—Charles Henry Comerford David Roderick Hennessy Charles Lewers McDonogh Philip Augustus Hall Thomas Joseph Lane Andries Adriaan Louw Albertyn, Edward Oswald Marks Louis Blumberg and Thomas Stanton (equal) Thomas Galvin Roche Crosbie Weir and Charles Owen James Young (equal) and Alfred Henry Price

Midwifery (B A O)—Thomas Joseph Lane Frederick John Murphy James Carter Ogilvie and William Frederick Wicht (equal) Andries Adriaan Louw Albertyn, John Philip Macnamara, Alfred Henry Price, Charles Owen James Young Edward Oswald Marks and Robert William Pritchard.

INTERMEDIATE DENTAL EXAMINATION

Anatomy and Physiology—Irene Dorman

The following medals, prize, and scholarship were awarded — Cunningham medal (Anatomy), Cecil Emrys McQuade Purser medal (Physiology) Noelle Long and James Sinclair Quin (equal) Fitzpatrick prize, Thomas Joseph Lane Medical scholarship (Anatomy and Physiology), Johannes Cornelis Fouché

Sir Clifford Allbutt, K C B, celebrated his 80th birthday last week and received a presentation from the members of the medical profession at Cambridge

MEDICAL MAGISTRATE—Dr E N Burnett has been appointed a justice of the peace for Newcastle

ROYAL MEDICAL BENEVOLENT FUND—At the last meeting of the committee held on July 11th 32 cases were considered and £264 granted to 26 of the applicants A summary of the cases relieved will be given in a later issue

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND—The following subscriptions have been received since the publication of our last list —

	£	s	d		£	s	d
Mr A. Chapman	0	11	9	Society of Apothecaries of London (second donation—total £150)	100	0	0
Mr L. E Thomas	0	19	9				
Dr G D H Carpenter (fifteenth donation—total £16)	1	0	0				

Subscriptions to the Fund should be sent to the treasurer of the Fund, Dr H A Des Vœux, at 14, Buckingham gate, London, S W, and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited

OXFORD OPHTHALMOLOGICAL CONGRESS — The seventh annual meeting of the Oxford Ophthalmological Congress was held on July 13th and 14th at Oxford, the Deputy Master, Captain P H Adams, R A M C (T), presiding The members of the congress were accommodated at Keble College, whilst the scientific work of the congress was carried on in the department of human anatomy, kindly lent for the purpose by Professor Arthur Thomson Considering the circumstances the attendance was good A discussion on the Relationship of Ophthalmology to General Medicine was opened in the morning by Sir William Osler, who dealt with the subject clinically The following contributed papers Mr Walter H H Jessop, Captain Adams, Dr F E Batten, Mr J Gray Clegg, Lieutenant Colonel W H W Elliot, Dr Tyson Mr J Hern, and Captain Stack In the afternoon Sir Anderson Critchett reopened the discussion and dealt with the subject from a more general point of view Mr Harrison Butler, Mr A J Ballantyne Mr J Jameson Evans, and Mr Leighton Davies contributed papers, and papers by Dr James Taylor and Dr M McNaughton-Jones were read in their absence

The morning of the second day was given up to addresses and demonstrations as follows —An address by the Master, Mr Sydney Stephenson who was unavoidably absent, on the Diagnostic Value of Tubercle of the Choroid, Lieutenant-Colonel Elliot Treatment of Ophthalmic Diseases by Indigenous Methods in India, Mr Stephen Mayou lantern slides showing some Orbital Tumours, and Mr Harrison Butler (*a*) Some Remarks on Spring Catarrh (with lantern pictures), and (*b*) the Result of Squint Operations During the morning a resolution was brought forward and unanimously passed, to the effect that the congress were of opinion that all workers exposed to danger from flying particles with especial reference to those engaged in munition factories should be provided with and encouraged to wear suitable protective goggles" The afternoon was spent at the Eye Hospital, where a good number of interesting cases were shown by Captain Adams Mr St Clair Roberts, and Mr Harrison Butler Short communications were made by Mr F Wood White and Mr F W Sydenham The proceedings concluded with a demonstration at the Ratcliffe Infirmary by Major Turrell R A M C (T) on the electrical treatment of warts and naevi

The scientific museum, which was open throughout the meeting, contained some excellent demonstrations amongst which the collection of paintings illustrative of tubercle of the choroid by Mr Sydney Stephenson attracted special notice as did those showing fundus conditions in various diseases by Mr Ballantyne Dr F W Edridge Green gave demonstrations on binocular vision and various subjective phenomena connected with the retina and their explanation in the theory of vision, and Mr J A. Menzies demonstrated the value of the Simpson light in the treatment of scar tissue in the cornea Pathological specimens were shown by Captain Adams, Mr Gray Clegg, Mr Ballantyne, Mr Norman Pike, and Mr A B Cridland A commercial museum was given room in the same building, and afforded good opportunity for the examination of the apparatus and instruments

At the conclusion of the discussion on Thursday the Deputy Master and Mrs Adams invited members and their friends to tea at 53, Broad street, and at 8 P M the official dinner took place in the hall of Keble College, the Warden presiding

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS

Mesopotamia and the Dardanelles

A Bill has been introduced into the House of Commons by Mr ASQUITH to constitute two special commissions to inquire into the conduct of the operations of war in the Dardanelles and in Mesopotamia respectively

On the debate on the second reading of the Bill on Wednesday, Mr ASQUITH announced that the Commission of Inquiry into the operations in Mesopotamia would be composed of Lord George Hamilton (chairman), Lord Donoughmore, Lord Hugh Cecil, M P, Sir Archibald Williamson, M P, and Mr J Hodge M P The proposed constitution of the Dardanelles Commission is —Lord Cromer (chairman), Mr Andrew Fisher, Sir Thomas Mackenzie Sir F Cawley, M P, Mr J A Clyde, K C, M.P, and Mr Stephen Gwynn, M P

Reports of Certifying Surgeons

The Police, &c (Miscellaneous Provisions) Bill has passed through Committee in the House of Lords In the course of the proceedings in Committee Lord LATYMER moved, as an amendment, to omit the clause which abolishes the investigation of accidents by certifying surgeons except in specified cases After some discussion the amendment was negatived by 40 votes to 7 The clause was therefore retained.

HOUSE OF COMMONS

WEDNESDAY, JULY 19TH

Medical Treatment of Discharged Wounded Soldiers

Mr HUME WILLIAMS asked the Financial Secretary to the War Office whether soldiers discharged from the Army with a pension on account of wounds were left to pay, out of their pension, for any subsequent medical treatment that the wounds might require, and, if so, whether provision would be made for gratuitous treatment for discharged soldiers in so far as they suffered from the direct effect of wounds received in the war—Mr FORSTER answered Soldiers discharged from the Army on account of wounds can, on application to the Secretary of the Royal Hospital, Chelsea, obtain treatment in a military hospital, provided there is a reasonable probability that their disability will be cured or materially improved thereby While in the hospital their pension is raised to the full amount allowed for total disablement, and any allowance borne before discharge to which they may be entitled A stoppage of 1s per day is made for maintenance while they are in hospital

Mr HUME WILLIAMS Could not the same arrangement be made applicable to people in country districts who cannot get up to Chelsea Hospital ?—Mr FORSTER Yes, the same arrangement would apply, and accommodation would naturally be found for them in the most convenient military hospital

Mr HUME WILLIAMS Where ought they to apply ?—Mr FORSTER Apply by letter to the Secretary of the Royal Hospital Chelsea

Mr WARDLE Is it the practice of the War Office to discharge a man who is suffering from wounds before being admitted to a hospital ?—Mr FORSTER No, these are cases where the wound breaks out afresh, or some further disability arises after discharge

THURSDAY, JULY 20TH

Control of the Sale of Cocaine

Sir JOHN LONSDALE asked the Home Secretary whether he was now in a position to say what steps were proposed by the Government to deal with the sale of cocaine—Mr HERBERT SAMUEL replied The sale of cocaine to any member of the Forces is already prohibited by Order 40 of the Defence of the Realm Regulations Further steps however, are necessary to put a stop to the illegitimate traffic in this drug which is now prevalent and I am proposing to obtain at once an extension of the Regulations to enable the Government to control the sale of the drug generally

Colonel NORTON GRIFFITHS Did not the right honourable gentleman promise to take active steps in reference to the matter some time ago in answer to a question of mine?—Mr SAMUEL It has taken a little time to elaborate the form of the Regulation It is completed, and I am awaiting a meeting of the Privy Council in order to secure its enactment

Acute Mental Cases in the Navy

Commander BELLAIRS asked the Secretary to the Admiralty whether he was aware that the experience of the war had shown that acute mental cases could not be adequately treated in general wards, and whether the fact that mental cases were distributed in the wards meant that there were no acute mental cases in the Royal Navy —Mr MACNAMARA wrote in reply Cases of neurasthenia and acute mental cases are quite distinct and are treated by different methods Cases of the former are treated in general medical wards with excellent results up to the present Acute mental cases are treated in the special mental wards that are provided in our three large naval hospitals The increase in the percentage of acute mental cases in the Navy since the war began has not been very great

Commander BELLAIRS asked for what length of time mental and neurasthenic patients were treated in naval base hospitals before being invalided out of the service as incurable —Mr MACNAMARA replied No definite time can be stated for which mental and neurasthenic patients are treated before being invalided as incurable The time of treatment depends entirely on the type of cases, and as regards insanity particularly the question arises whether a patient is not more likely to recover in Yarmouth than in a general hospital Generally speaking, it may be said that patients are not invalided until there is no chance of recovery within a reasonable time, or until it is evident that hospital treatment is doing no good

Commander BELLAIRS asked what provision was made in the case of those who had been sent home to their relatives with so-called nervous breakdown, or neurasthenia, and whether consideration was given in cases where there was a relapse which necessitated closer supervision than relatives were able to give —Mr MACNAMARA answered If the disability is attributable to the service a pension under the War Disablement Scale is awarded in accordance with the earning incapacity when discharged (if totally incapacitated the rate is 25*s* a week), with allowances in respect of children and the usual additions for badges, medal, and petty time If not attributable the pension or gratuity to which the man is entitled in respect of his service is awarded, a life pension being awarded for more than 10 years' service As to the second part of the question, if the disability is attributable the urgent cases in which the treatment required is of a temporary nature are received again into a naval hospital

Deaths from Heat-stroke in India

Answering questions which were put by Major ASTOR relating to deaths amongst Territorials from heat-stroke in India, Mr CHAMBERLAIN (Secretary for India) wrote I have received telegrams from the Viceroy on this subject On June 15th the Viceroy telegraphed as follows —

"We regret to report 50 cases, with 12 deaths, from heat-stroke occurred amongst drafts ex hired transport *Ballarat* on the train journey between Karachi and Lahore Troop train left Karachi June 5th with 13 officers and 1013 men On reaching Rohri 32 men were removed to Civil Hospital, Sukkur, suffering from heat-stroke, of whom 12 died, and 18 more cases occurred before train reached Lahore Train carried three medical officers, had two second-class carriages, fitted up as hospitals with fans and was provided with coffee shop and good supply of ice, no overcrowding 30 men in four wheelers and 60 in bogies, normal carrying capacity for troops is 36 and 72 respectively Arrangements have been made to send to hill depôts all men who have been suffering from the rail journey Orders have been issued stopping all further movement of troops by rail from Karachi to Northern India A complete report of the occurrence will be furnished at an early date"

A further telegram on June 19th added that the total number of heat stroke cases was 136, with 15 deaths All sick reported doing well On July 15th, in reply to further inquiry, I received the following telegram —

In reply to your inquiry dated July 11th Karachi was selected as the port of disembarkation as the majority of the drafts on board the *Ballarat* were for units in the 4th, 1st and 2nd Divisions—namely, Quetta, Peshawar, and Rawal Pindi Drafts for the Lucknow and Mhow Divisions disembarked at a later date"

To-day I have received a further telegram as follows —

"With reference to the inquiries in your telegram dated July 14th the case is being investigated by a senior officer from Army Headquarters and a specially selected medical officer They left for Karachi on the 7th inst with instructions to visit all stations along the line where fatalities occurred, collecting evidence, and submitting a full report as soon as possible after their return to Simla about the 28th instant"

Leprosy as a Notifiable Disease

Answering Mr BURGOYNE, who asked whether he would consider the desirability of scheduling leprosy as a notifiable disease, Mr LONG (President of the Local Government Board) said The question whether it is desirable to make the disease notifiable is under consideration I may add, however, that the number of cases of this disease in this country is extremely small

Tuberculosis in Ireland

Mr PATRICK MEEHAN asked the Home Secretary whether he was aware of the need for adequate provision for patients in advanced infectious stages of tuberculosis in Ireland, whether he was aware that the effectiveness of the work of the local committees was seriously hampered by such cases spreading infection, and whether immediate steps would be taken to secure proper provision for such cases —Mr HERBERT SAMUEL answered The importance of securing the isolation of patients in an advanced stage of tuberculosis has been duly recognised by the Irish Local Government Board, who had lost no opportunity of bringing the subject to the attention of the county councils The matter, however, is complicated by the necessity of affording accommodation for such cases in reasonable proximity to their homes as well as by difficulties of finance and management which would result from the establishment of numerous specialised institutions The recommendation which the Board has addressed to all the county councils has proceeded on the lines of the utilisation of the union isolation hospitals for this purpose by means of their transfer from the boards of guardians to the sanitary authorities and their subsequent adaptation for the reception of advanced tuberculosis patients This suggestion is receiving attention

Mr MEEHAN asked the right honourable gentleman whether the Local Government Board had yet adopted a scheme for the domiciliary treatment of tuberculosis patients in Ireland, whether he was aware that the Local Government Board suspended the domiciliary part of schemes adopted by county committees in Ireland pending the preparation of an All Ireland scheme, and whether, in the event of an All Ireland scheme not being put into operation at once, the Local Government Board would permit county committees who had adopted domiciliary schemes of their own to put such schemes into operation at once —Mr SAMUEL replied Domiciliary treatment of tuberculous patients is being carried out under the schemes of a number of county councils, but the Irish Local Government Board have advised the councils to proceed tentatively in this matter pending the complete organisation of their dispensary arrangements In a few instances the Board in accordance with instructions from the Treasury, by whom half the net cost of approved schemes for the treatment of tuberculosis is recouped, have taken exception to a monetary allowance for the purchase of ordinary subsistence for a tuberculosis patient under domiciliary treatment

Mr MEEHAN Is the right honourable gentleman aware that the domiciliary treatment of patients costs 10*s* as against a much larger amount per week for sanatorium treatment, that there are a number of cases in Ireland which are fit for home treatment, and whether this scheme of the Local Government Board will be put into operation at once?—Mr SAMUEL I will bear in mind what the honourable Member has said

Medical Arrangements in Mesopotamia Sir Victor Horsley's Letters

Mr ASQUITH (Prime Minister) announced that the Government had decided to institute statutory inquiries into the conduct of the campaign in Mesopotamia and of the expedition to the Dardanelles

In the course of a debate on the motion for the adjournment, in which the need for those inquiries was urged,

Sir NORVAL HELME desired assurances that information would be welcomed by the tribunals to be set up He went on to say My reason for asking the question is that yesterday, when Lady Horsley heard of the lamented death of her husband, who sacrificed his life in the public service, having left Egypt to go to Mesopotamia to overlook the medical interests of the expedition there, she desiring to contribute, so far as she was able, to that inquiry entrusted me with letters and extracts from her husband's letters bearing upon such matters as transport medical supplies, the lack of water and so on, in respect to that important enterprise Seeing we are to have this inquiry conducted, I rose to say how anxious I was that there should be a clear understanding given to Members of this House or to the public generally having information bearing upon the conduct of that campaign that that information would be welcomed by His Majesty's Government, that we should have the opportunity of putting such facts as come within our knowledge before the Government I do not presume, under present

circumstances, to say more I feel however, it is right that I should acknowledge the indebtedness I feel to Lady Horsley in the sad circumstances If in the debate to-day any facts in the correspondence of her late husband could be of use to or at the service of the House she was anxious that it should be if the public interest was thereby aided

Mr MALCOLM in urging the necessity of immediate inquiry, referred to the stock of drugs and dressings that had been kept in India He said that the Director-General of the Indian Medical Service long ago pressed upon the Army Finance Department that it would be difficult in the case of a big war to get the necessary drugs and dressings from England. Five years before the war the Army Finance Department set its face against a project for the manufacture of medicines in India, and tried to starve it out, but the concern being able to supply local governments and civil departments with drugs, became a success

Colonel YATE spoke of the account he had received of the inadequacy in the equipment of the hospitals

Mr ANNAN BRYCE said that officers who had come home described in the most moving terms the misfortunes that arose from the want of hospital accommodation and supplies

Mr LLOYD GEORGE (Secretary for War) said that the inquiry must be a searching one Meantime care had to be taken that the Force in Mesopotamia was properly equipped, and that the state of things complained of by honourable Members could not occur again assuming what they had stated were facts The War Office had now assumed responsibility for the future of the campaign. Generally whenever there had been a requisition from the Government of India to the War Office whether in respect of ordinary supplies or for the sick and wounded it had always been honoured

Sir JOHN JARDINE Do those requisitions include those for medical officers?

Mr LLOYD GEORGE Certainly several were requisitions for medical officers, which have been honoured

Sir JOHN JARDINE From this country?

Mr LLOYD GEORGE Yes from this country Sometimes the assistance had been secured from the Force in France more especially he thought with regard to assistant doctors—a class peculiar to India and which had its training there There was no doubt at all that that in a way was not a very satisfactory arrangement The War Office had the responsibility for directing operations, the Commander in Chief had the responsibility for supplies and the main responsibility for supplies must always remain with him because the only possible base of supplies so he (Mr Lloyd George) was advised, must be India The Government felt that if the War Office was to be responsible for the direction of the operations it must also accept direct responsibility for the supplies as well, including the arrangements for the sick and wounded and the transports and this arrangement had been come to with the Government of India tha whilst India remained the base for the Forces in Mesopotamia and that Force continued to be administered by the Commander-in-Chief in India the Commander in Chief would receive his instructions from and be responsible to, the Army Council in regard to all matters of personnel, administration and supplies to the Force in question. The War Office would take responsibility for the transport, that being the main difficulty The right honourable gentleman then dealt at some length with the question of river transport

Mr MALCOLM What are you going to do about the results of the Vincent Report? What use will that be put to?

Mr ANNAN BRYCE When will that report be published?

Mr LLOYD GEORGE The Vincent Report has not arrived yet and therefore we do not know what it is We have of course our ideas as to what it is but we have not seen it

Mr CHURCHILL Cannot you get it telegraphed?

Mr LLOYD GEORGE The Commander in Chief has his own observations to make upon it and he is very anxious tha they should accompany the report It will be here in a very short time and it will be one of the first documents placed before the Commission The right honourable gentleman proceeded to discuss other aspects of the situation The first duty of the Government was to see that things were put right The second duty was to see if anyone had been responsible for negligence if anyone through his negligence had inflicted pain and torture upon the gallant men who had tendered their lives to their country and who through their great deeds had made honourable Members proud of the race to which they belonged, that those men should be held to account

Mr DILLON said that statements had been laid before him which went to show that the medical provision made for the troops was absolutely scandalous No adequate attempt was made to furnish the troops with drugs or with river transport and the supply of medical men and medical orderlies was shockingly insufficient

Sir HENRY CLARK observed that he had been told by medical men how bad the state of things had been in Mesopotamia He urged that the Vincent Report ought to be at once made public and that it ought not merely to be submitted to the inquiry which the Government had announced

MONDAY, JULY 24TH

Deaths in Troop Train in India.

Replying to Sir CLEMENT KINLOCH-COOKE, who asked a question relating to the deaths in a troop train in India Mr. CHAMBERLAIN (Secretary for India) said I have directed the Government of India that, having fixed the responsibility for this deplorable incident, they are to hold the person or persons responsible to strict account

The Sale of Cocaine.

In reply to Major ASTOR, Mr. HERBERT SAMUEL (Home Secretary) said As regards the sale of cocaine a medical prescription is not required under the present law The maximum penalty for illicit sale is six months' imprisonment and a fine of £100 The new regulations on this subject, which I announced in the House recently, will be submitted, I hope at the next meeting of the Privy Council

Mr RAFFAN Will provision be made in the new regulations for the supply of the necessary quantities of cocaine to dental practitioners, both registered and unregistered?—Mr SAMUEL Yes, sir, that is being done

Mr RAFFAN For both registered and unregistered dental practitioners?—Mr SAMUEL I must ask for notice of that.

TUESDAY JULY 25TH

The Sale of Cocaine

Mr RAFFAN asked the Home Secretary whether the draft regulations relating to the sale of cocaine had been submitted to medical and dental governing bodies —Mr. H SAMUEL answered The Royal College of Physicians has been consulted I am not sure that any organisation representing dentists has been consulted I shall take that into consideration

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions and others possessing information suitable for this column, are invited to forward to THE LANCET Office directed to the Sub-Editor not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication

HAWKSWORTH Mr has been appointed Deputy Acting Medical Officer to the Exmouth District for the St Thomas (Exeter) Board of Guardians

HOXAN, Miss B L.D.S. Edin., Dental Surgeon to the Dorset Education Committee

LEON GEORGE ALEXANDER, M.A. Oxon M D Brux M.R.C S L.R C.P D P H Eng Temporary School Medical Officer to the Torquay Education Committee

MASTERMAN E W G., M.D Durh. F.R.C S Eng D.P.H., Medical Superintendent to St Giles Infirmary Camberwell

STURDEE EDWIN LAWRENCE, M.R C S L.R C P Acting Deputy Public Vaccinator to the Exmouth District for the St. Thomas (Exeter) Board of Guardian.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index)

When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor.

ALTON HANTS LORD MAYOR TRELOAR CRIPPLES HOSPITAL.—Assistant Resident Medical Officer.

BEDFORD COUNTY HOSPITAL.—House Surgeon unmarried. Salary as arranged with board &c.

BIRKENHEAD UNION INFIRMARY —Female Resident Assistant Medical Officer Salary at rate of £175 per annum with board &c.

BIRMINGHAM CITY —Female Assistant Medical Officer for Infant Consultation work. Salary £300 per annum

BIRMINGHAM CITY EDUCATION COMMITTEE.—Two Temporary Assistant School Medical Officers. Salary £300 per annum

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Three Assistant Surgeons

BIRMINGHAM UNIVERSITY —Lecturer in Physiological Department Salary £200 per annum

BOLTON INFIRMARY AND DISPENSARY —Female Second House Surgeon Salary £220 per annum, with board &c.

BRISTOL ROYAL INFIRMARY —House Surgeons and House Physicians Salary at rate of £120 per annum, with board, &c. Also House Surgeon to Throat Nose and Ear Department

BROOK WAR HOSPITAL, Shooters Hill (Woolwich —Resident Medical Officer Salary £1 per diem with board &c

BURY INFIRMARY —Junior House-Surgeon. Salary £150 per annum with board &c

BURTON DERBYSHIRE, DEVONSHIRE HOSPITAL — Assistant House Physician. Salary £100 per annum, with board, &c

CARDIFF KING EDWARD VII S HOSPITAL.—House Surgeon for six months Salary at rate of £120 per annum with board &c.

CARSHALTON, SURREY QUEEN MARY'S HOSPITAL FOR CHILDREN —Temporary Assistant Medical Officers Salary £7 7s per week with board &c

COVENTRY AND WARWICKSHIRE HOSPITAL.—Senior House Surgeon Salary £300 per annum with board, &c.

FOLKESTONE, ROYAL VICTORIA HOSPITAL.—Resident Medical Officer Salary £200 per annum, with board, &c.

GUILDFORD ROYAL SURREY COUNTY HOSPITAL.—House Surgeon Salary £150 per annum, with board &c

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton —House Physician for six months. Salary 50 guineas

HÔPITAL ET DISPENSAIRE FRANÇAIS 172, Shaftesbury avenue W C — Laryngologist

HULL, VICTORIA HOSPITAL FOR SICK CHILDREN —Female House Surgeon Salary £100 per annum with board &c.

LEEDS PUBLIC DISPENSARY —Female Resident Medical Officer Salary £200 per annum with board &c.

LINDSEY (LINCOLNSHIRE) COUNTY COUNCIL.—Locum Tenens Assistant Tuberculosis Officer for one month Salary at rate of £400 per annum.

LIVERPOOL, BROWNLOW HILL INSTITUTION —Female Resident Assistant Medical Officer Salary at rate of £300 per annum with rations, &c

LIVERPOOL, DAVID LEWIS NORTHERN HOSPITAL.—House Surgeon for three or six months Salary at rate of £150 per annum with board &c

LONDON LOCK HOSPITAL (MALE) Dean-street, Soho, W —Anæsthetist for one morning per week Salary £21 per annum

MANCHESTER CORPORATION —Temporary Assistant Tuberculosis Officer Salary at rate of £350 per annum

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN Park place, Cheetham Hill road —Female House Surgeon Salary £120 per annum with board &c.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Northwood, Middlesex —Resident Medical Officer Salary £120 per annum with board &c

NEWCASTLE UPON TYNE EDUCATION COMMITTEE.—Assistant School Medical Officer Salary £300 per annum

QUEEN'S HOSPITAL FOR CHILDREN, Hackney road Bethnal Green, B — Temporary Assistant Physician Also Temporary Assistant Surgeon. Salary £25 per annum to cover travelling expenses

REIGATE BOROUGH —Medical Officer to Maternity and Child Welfare Centre one afternoon a week Salary at rate of £50 per annum

ST PANCRAS INFIRMARY —Female Junior Assistant Medical Superintendent of South Infirmary, Pancras road N W, and Junior Assistant Medical Officer of House adjacent. Salary at rate of £200 per annum with board &c.

SHEFFIELD CITY TUBERCULOSIS DISPENSARY —Female Assistant Medical Officer Salary £350 per annum

SHEFFIELD JESSOP HOSPITAL FOR WOMEN —Junior Female House Surgeon unmarried for Gynæcological and Maternity Departments Salary £160 per annum with board &c.

SOUTHAMPTON COUNTY BOROUGH ISOLATION HOSPITAL.—Resident Medical Officer Salary £300 per annum with board &c

STAFFORDSHIRE COUNTY MENTAL HOSPITAL, Cheddleton —Female Assistant Medical Officer Salary £270 per annum with board, &c

SUNDERLAND THE ROYAL INFIRMARY CHILDREN'S HOSPITAL.—Female Resident Medical Officer for six months Salary £100 per annum with board &c

TUNBRIDGE WELLS GENERAL HOSPITAL.—House Surgeon, unmarried Salary £250 per annum with board &c

THE Chief Inspector of Factories Home Office, London, S W gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Cliff Warwick at Clonmel, Tipperary at Grangemouth, Stirling at Millom Cumberland; and at Ufculm Devon

Births, Marriages, and Deaths.

BIRTHS

FRANKLIN —On July 19th at nursing home, the wife of E Morris Franklin W A.M.S Abeokuta, Nigeria, and 20, Brightwell-avenue Westcliffe, of a son

HALLINAN —On July 20th, at M O s Bungalow North Front, Gibraltar the wife of Captain J C Hallinan R A.M C of a daughter

LEE.—On July 26th at 5 Angleses terrace, St Leonard s-on Sea, to James C Lee M D and Ethel Lee (née Gompertz) M B, Ch B — a son

LITTLEJOHNS —On July 18th at Trevarthian terrace Stoke Devonport, the wife of Major A. S Littlejohns R A.M C, of a son

RICHARDS —On July 16th at Hyde Park mansions W the wife of Captain Owen Richards, R.A.M C, D S O of a daughter

MARRIAGES

M'GONIGLE—CAMPBELL.—On July 15th at St Matthew s Bayswater George Cuthbert Mura M Gonigle, M D B S B Hy D P H Temporary Captain R.A.M C to Dorothy Evelyn, youngest daughter of the late Captain Charles Campbell and Mrs Campbell

PHILLIPS—JENKINS —On July 18th, at Gwaecaegurwen by the Rev R J Roderick George Stanley Phillips Captain, R.A.M C only son of Mr and Mrs Phillips Carmarthen to Grace Jenkins, youngest daughter of Mr Samuel Jenkins J P and Mrs Jenkins Cwmgorse, Gwaecaegurwen

RICHMOND—KELLY —On July 8th, at the Consulate, Alexandria, Egypt, Captain Arthur Eaton Richmond R.A.M C (S.R) to Margaret May, daughter of Mr William Kelly, of Tuam co Galway

VEALE—DRURY —On July 19th, at the Private Chapel of the Palace, Ripon Rawdon Veale, M D Lond, Major R.A.M.C (T), to Frances, youngest daughter of the Bishop of Ripon and the late Mrs Drury

DEATHS

ACLAND —On July 12th killed in action Temporary Captain John Henry Dyke Acland, R.A.M C aged 36 years.

BAKER.—On July 20th at West Heath-drive Golders Green John H Baker, M.D of Bedford-square, London aged 60 years

BURRELL.—On July 22nd Lieutenant Stanley Walter Burrell, R A.M.C of St. Bartholomew s Hospital aged 25 years

MICHELL.—On July 20th of wounds received on July 3rd Robert Williams Michell, M.D, F R C S., Captain, R.A.M.C of Cambridge aged 56 years

NEWBERY —On July 14th killed in action, Richard Fenton Theodore Newbery Temporary Lieutenant R.A.M.C attached to Northamptonshire Regiment.

N.B —A fee of 5s is charged for the Insertion of Notices of Births, Marriages, and Deaths

Notes, Short Comments, and Answers to Correspondents.

STUDENTS' NUMBER OF THE LANCET

INFORMATION intended for the Students' Number of THE LANCET must be sent WITHOUT DELAY, addressed to the Sub Editor, and marked on the envelope "Students Number Only"

THE MEDICAL PROFESSION IN 1816

THERE is apparently no modern thesaurus of medical anecdotes A century ago such works were gravely sent forth from the press, and may be said to mark the last phase of the period, of which Molière was the prime anti medical satirist when the whole world of medicine, from grave and learned doctors down to venal apothecaries, was regarded as a fit subject for ridicule or suspicion In 1816, according to 'Anecdotes Medical, Chemical, and Chirurgical, collected, arranged, and transmuted by an Adept," in two volumes the physician sometimes boasted that he prescribed as well when he had drunk a great deal of wine as when sober 'I should guess," said the famous Dr James Gregory, inventor of the Mixture," that it might be found in all physicians (to say nothing of the other limbs of the Faculty), who think as little what they are doing when sober, as they do, or might do when drunk" The Adept's book of "Anecdotes" is dedicated to this James Gregory (the Third, really the Fourth), a distinguished Edinburgh professor in his time, and many quotations are made from his writings, which are singularly plain spoken as to the medical ethics and practice of his time Such criticisms by a leading physician would fortunately be impossible to-day "Some of the medical profession," he says, "out of pure love of science, and without the least necessity, have taken small pox matter from the dead body of one who died of the worst kind of the disease, and have inoculated with it A dead body, half putrid, has been dug out of the grave, where it had lain for some days, and small pox matter has been taken from it for the same purpose" He has the greatest contempt for medical literature "More than ninety and nine parts in the hundred of all that has been written on the Theory and Practice of Physic, for more than two thousand years, is absolutely useless A large proportion of those writings consists of controversies, generally carried on with the bitterest animosity" And the same he believes to be true of surgical writings Yet this writer emphasises the fact that the profession, at the end of the eighteenth century, is rising in importance The English surgeons especially have done well, he thinks to dissociate themselves from the barbers Medical students are cited by him as extraordinarily zealous in the pursuit of knowledge, though somewhat absurd in it "Their debates on controverted points have often been conducted with all the violence of party spirit, within my memory, some of them fought with pistols about their medical systems, many more were eager to do the same One zealot out of stark love and kindness, resolving to convert me came to my house on pretence of asking some questions about what I had taught in my lectures, and regaled me with a harangue, of which I understood not one fiftieth part, but which lasted near an hour, and was delivered with such vehemence of gesture and passion, that he not only sweated profusely, but literally foamed at the mouth" Yet from among these controversial young men in Edinburgh grew up the generation of the Bells and of the Listons

THE LATE SIR CHARLES BLANE

A CORRESPONDENT writes —Sir Charles Blane, Bart, R N, who was lost in H M S Queen Mary, represented the family of that famous surgeon in the Navy Sir Gilbert Blane who was with Rodney in 1782 and was made a baronet for bringing the sick and wounded back from Walcheren and in 1829 founded the Blane medal given to naval medical officers who send into office the best journals of their practice

"PATENT" MEDICINES

IN the report just issued, of the Commissioners of His Majesty's Customs and Excise for the year ended March 31st, 1915, it is explained that the Excise duties in force for medicine labels are 1½d, 3d 6d, 1s, 2s, 3s 10s, and £1, according to the price of the medicine The net receipts from these duties amounted in 1911 to £325 646, in 1912 to £327 857, in 1913 to £328,319, in 1914 to £360,377, and in 1915 to £333,777 The licence duty levied on makers or vendors of patent medicines is 5s The number of these licences

issued and the receipts therefrom were, in 1911, 42,697, £10 673, in 1912 43 131, £10,781, in 1913, 43,118, £10,780, in 1914, 43,156 £10,791, and in 1915, 42,731, £10,686 These figures apply to Great Britain only, neither the medicine stamp duty nor the licence duty extending to Ireland

ACKEE

To the Editor of THE LANCET

SIR,—With reference to the investigations of Dr H H Scott, Government bacteriologist to Jamaica, referred to in an annotation in THE LANCET of July 8th, and incriminating the "ackee" as the cause of vomiting sickness, it may be worth mentioning that in West Africa, where the tree *Blighia sapida* is indigenous, the native belief is that the poisonous property resides in one portion only of the fruit, the removal of which is said to render the remainder harmless The fleshy aril clasping the base of the large seeds is the edible portion, and in the aril the central fibrous raphé is bitter and is stated to contain the poisonous element This bitter portion is therefore removed before eating, whether uncooked or after boiling or roasting The Yorubas, knowing this, call the dangerous part *ihu*, meaning *death* (perhaps facetiously, as in the slang use of the expression 'sudden death" in reference to some attractive but doubtful comestible) The Yoruba name for "ackee" is *ishin*, and tribal knowledge of the matter seems to have become crystallised in a proverb meaning "He who knows how to eat the *ishin* knows enough to remove the poison from it I am, Sir, yours faithfully,

J M DALZIEL,
Edinburgh, July 21st 1916 Sanitary Officer, Lagos

DIGITALIS LEAVES IN CORNWALL

SOME of the school children have been gathering the leaves of the foxglove in Cornwall They have to be despatched the same day as gathered, and are sent to a manufacturing firm of chemists in London, who pay 12*s* per cwt for sound leaves of a good green colour The railway rate is high, about 5*s* per cwt The profit on the sale of the leaves goes towards the school War Charity Fund

WANTED, A HOME

To the Editor of THE LANCET

SIR,—The widow of a naval officer, with pulmonary tuberculosis apparently arrested and a weak heart, would like to find a comfortable home At present she is able to take care of herself, and could contribute a guinea a week towards her maintenance I am, Sir, yours faithfully,
July 24th, 1916 R G

LOGICIAN —Where an age term is employed an actual date must be fixed—there is no possibility of recognising a physiological age If the Local Medical War Committee is doing its work properly the abuses mentioned should not occur Will our correspondent give categorical examples of nepotism, when a most useful inquiry might follow?

COMMUNICATIONS not noticed in our present issue will receive attention in our next

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE West London Hospital, Hammersmith road W

MONDAY —2 P M Medical and Surgical Clinics X Rays Mr Gray: Operations Mr B Harman: Diseases of the Eye. Dr Simson: Diseases of Women.

TUESDAY —2 P.M Medical and Surgical Clinics. X Rays Mr Baldwin: Operations. Dr Banks Davis: Diseases of the Throat, Nose and Ear Dr Pernet: Diseases of the Skin.

WEDNESDAY —10 A.M Dr Saunders: Diseases of Children. Dr Banks Davis: Operations of the Throat, Nose, and Ear 2 P.M. Medical and Surgical Clinics X Rays. Mr Pardoe: Operations Dr Simson: Diseases of Women.

THURSDAY —2 P.M., Medical and Surgical Clinics X Rays. Mr Gray: Operations Mr B Harman: Diseases of the Eye.

FRIDAY —10 A.M , Dr Simson: Gynæcological Operations 2 P M., Medical and Surgical Clinics X Rays Mr Baldwin: Operations Dr Banks Davis: Diseases of the Throat, Nose, and Ear Dr Pernet: Diseases of the Skin.

SATURDAY —10 A.M. Dr Saunders: Diseases of Children. Dr Banks Davis: Operations of the Throat, Nose and Ear Mr B Harman: Eye Operations 2 P M., Medical and Surgical Clinics X Rays Mr Pardoe: Operations

NORTH EAST LONDON POST-GRADUATE COLLEGE Prince of Wales s General Hospital Tottenham N

MONDAY —Clinics:—10.30 A.M Surgical Out patients (Mr E Gillespie) 2.30 P.M Medical Out-patients (Dr T R. Whipham): Gynæcological Out-patients (Dr Banister) 3 P.M., Medical In patients (Dr R M Leslie)

TUESDAY —2.30 P.M Surgical Operations (Mr Carson) Clinics:—Medical Out patients (Dr A G Auld) Surgical Out patients (Mr Howell Evans); Nose Throat, and Ear Out patients (Mr C H Hayton) Radiography (Dr Metcalfe) 3.30 P.M., Medical In patients (Dr A. J Whiting)

WEDNESDAY —Clinics:—2.30 P.M., Throat Operations (Mr C H Hayton) Children Out-patients (Dr T R. Whipham) Eye Out-patients (Mr R P Brooks) Skin Out-patients (Dr H. W Barber) 5.30 P.M., Eye Operations (Mr R P Brooks)

THURSDAY —2.30 P.M. Gynæcological Operations (Dr A. E Giles) Clinics:—Medical Out-patients (Dr A. J Whiting) Surgical Out-patients (Mr Carson) Radiography (Dr Metcalfe) 3 P M., Medical In patients (Dr R M. Leslie)

FRIDAY —2.30 P M , Surgical Operations (Mr Howell Evans) Clinics:—Medical Out-patients (Dr A. G Auld) Surgical Out-patients (Mr E Gillespie); Eye Out-patients (Mr R P Brooks)

THE THROAT HOSPITAL Golden square W

MONDAY —5.15 P M. Special Demonstration of Selected Cases
THURSDAY —5 15 P M. Clinical Lecture.

MANAGER'S NOTICES

THE INDEX AND TITLE-PAGE TO THE LANCET

January to June, 1916

IN view of the Government restrictions upon the supply of paper, and the shortage of paper quite apart from these restrictions, the Index and the Title-page to the volume of THE LANCET which was completed with the issue of June 24th have been printed separately, and copies have been supplied gratis to those subscribers who have, up to July 27th, intimated to us their wish to receive them Other subscribers will be similarly supplied, so long as the stock remains unexhausted, on application to the Manager, THE LANCET Office, 423, Strand, London, W C Such application should please be sent in at once, direct to the Manager and not through Agents

Volumes and Cases

VOLUMES for the first half of the year 1916 will be ready shortly Bound in cloth, gilt lettered, price 16*s* , carriage extra

Cases for binding the half year's numbers are now ready Cloth, gilt lettered, price 2*s* , by post 2*s* 4*d*

To be obtained on application to the Manager, accompanied by remittance

TO SUBSCRIBERS

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423 Strand London, W C , are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c , should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Friday mails to all parts of the world

TO COLONIAL AND FOREIGN SUBSCRIBERS

Subscribers abroad are particularly requested to note the rates of subscriptions given on page 4

The Manager will be pleased to forward copies direct from the Offices to places abroad at the rates shown, whatever be the weight of any of the copies so supplied

METEOROLOGICAL READINGS

(Taken daily at 8.30 a.m. by Steward's Instruments)

THE LANCET Office, July 26th, 1916

Date	Barometer reduced to Sea Level and 32° F	Direction of Wind	Rainfall.	Solar Radio in Vacuo	Maximum Temp Shade.	Min Temp.	Wet Bulb	Dry Bulb	Remarks
July 20	30·170	N W	..	112	75	56	58	62	Fine
,, 21	30·226	S.E		121	77	60	60	63	Overcast
,, 22	30·220	E	...	117	70	59	57	59	Overcast
,, 23	30 190	N.E	..	65	62	52	51	53	Overcast
,, 24	30·196	N E		72	60	52	52	54	Overcast
,, 25	30·154	N E		117	71	54	57	59	Cloudy
,, 26	30·140	S E	...	110	73	57	57	60	Overcast

The following magazines, journals &c. have been received —Revista del Circulo Médico de Cordoba, Magazine of the London School of Medicine for Women American Journal of Orthopædic Surgery Bulletin of the Johns Hopkins Hospital, Proceedings of the Royal Society of Medicine St. Thomas s Hospital Gazette, Biochemical Journal Surgery Gynecology and Obstetrics American Journal of Obstetrics, Journal of the Royal Naval Medical Service, Medical Times, Pediatrics Maryland Medical Journal, La Clinique Ophtalmologique Clinical Medicine, &c.

Communications, Letters, &c., have been received from—

A.—Dr J Vere Arkle France. Messrs. Arnold and Sons, Lond. Messrs Adlard and Son, Lond; Messrs Allen and Hanburys Lond. Argus de la Presse Paris; Mr F W Alexander, Lond Dr Everitt Atkinson, Perth Western Australia Captain Adolphe Abrahams R.A.M.C; Dr E D Adrian Farnborough Mr G F Aldous, Plymouth. *Advertisers' Weekly* Lond. Manager of Army and Navy Male Nurses Co-operation Lond. Academie de Médecine Paris, Messrs. Adams and Son Rye. Mr G A. Arnaudin, Lond. Ardath Tobacco Co Lond; Aymard Patent Milk Sterilizer Co Ipswich; A. W. T

B.—Dr Robert Bell, Lond. Bristol Royal Infirmary Secretary of Mr S H Benson, Lond Messrs C Barker and Sons, Lond. Messrs. Burroughs Wellcome, and Co Lond. Dr G Blacker Lond. Bromley Education Committee, Secretary of Messrs Boulton and Paul Norwich Birmingham Corporation, Clerk to the Major E T Burke, R.A.M.C Captain Bristow R.A.M.C; Messrs Burt, Boulton and Haywood, Lond, Dr R G Barlow Warrington Birmingham and Midland Eye Hospital Secretary of Mrs Blackmore Lond. Professor J M. Beattie Liverpool Birkenhead Union Clerk to the Bolton Infirmary Secretary of Mr J F Briscoe Southampton Bury Infirmary Secretary of British Drug Houses Lond. Dr D F Bilpodiwala, Aden Birmingham Corporation, Medical Officer of Health to the Sir Lauder Brunton Bart, Lond.

C.—Dr R P Cockin Lond. Dr F G Clemow, Edinburgh Chelsea Hospital for Women Secretary of Captain H J Chatfield R.A.M.C France Mrs H. B Capps Christchurch Messrs R Cook and Co Lond. Dr Cornish Dorking Chicago School of Sanitary Instruction Dr Velazquez de Castro Granada Mr P A. Colmer Yeovil Messrs Corbyn, Stacey and Co Lond. Miss M Campbell, Lond. Mr Bernard Cridland, Wolverhampton The Chymol Co Lond.

D.—Messrs Down Bros Lond. *Daily Mail* Lond. Manager of Dr Vincent Dickinson, Lond. Dr G H Dart Lond.; Mr T N Darling, Lond.; Dr John M Dalziel Edinburgh D V Messrs Deighton, Bell, and Co, Cambridge

E.—Messrs Elliott and Fry Lond Lieutenant Colonel R H Elliott I M S (retired) Lond; Messrs Elliott and Sons Barnet Mr M Eisen Lond.

F.—Messrs Henry Frowde and Hodder and Stoughton Lond Captain G Finch R.A.M.C Major H. S Fremlin R.A.M.C Lond Messrs. Fielding and Hayes, Manchester Factories Chief Inspector of Lond. Dr R. Bruce Ferguson Lond.

G.—Dr J F Gill Cambridge Mr Vivian T Greenyer Lond; Mrs Grieve Chalfont St. Peter *Guy's Hospital Gazette* Lond Editor of Captain J C Glen, R.A.M.C

H.—Mr. J Harington Lond Captain G S Hughes, R.A.M.C France; Captain T. O Hutton, R.A.M.C France; Dr Wilfred Harris Lond., Dr J M Hobson, Lond., Dr. A. C Houston Lond; Mr J H Hollyer Droitwich Dr P Hamill Aldershot Miss Berkeley Hill, Lond. Messrs Hough, Hoseason, and Co Manchester; Dr Haynes Brentwood Messrs Abel Heywood and Son, Manchester Mr F S D Hogg Rickmansworth

I.—Irish Creameries Protection Society Cork The I L High Class Cigarette Manufacturing Co Lond; International Health Board New York; Inspector General of Civil Hospitals, Burma.

J.—Dr. A. J Jex Blake Lond Jessop Hospital for Women Sheffield Secretary of Lieutenant E T Jones R.A.M.C Mr J A. Jennings, Lond.

K.—Messrs. H. S King and Co Lond. Messrs P S King and Son Lond Messrs. Khosla Bros Lahore Dr John B Kuhne, Hastings

L.—London Insurance Committee, Lond; Dr Claude Lillingston Peppard Common London and Counties Medical Protection Society Secretary of London County Council Deputy Clerk of London School of Tropical Medicine, Secretary of Local Government Board Lond. Dr M O S Lawrance Barlestown Liverpool Guardians, Clerk to the Lindsey (Lincolnshire) County Council Lincoln, Medical Officer of Health to the; Mr R H Lucas Bury St Edmunds; Mr B Lester, Lond

M.—Dr M. Molony San Francisco Messrs Maconochie Bros Lond.; Messrs May and Baker Lond. Messrs C Midgley Manchester Professor Rutherford Morison, Newcastle on Tyne Messrs. O Mitchell and Co Lond. Medical Supply Association Lond Mr C G Moor Lond.; Dr C F Marshall Lond. Miss Ida Meller Lond. Mothers Union (Incorporated) Lond Central President of; M L Miss E D Mitchell Brigg Fleet Surgeon J St John Murphy R N Colonel H C Maudsley *Midland Counties Herald* Birmingham Manager of Dr S Marmo, Salerno Manchester Clerical, &c Association Secretary of Manchester Corporation Clerk to the; Dr M A. B Murphy Bradford Maltine Manufacturing Co Lond Mr W D Miller Aberdeen; Major R Tait Mckenzie Dr H A. Macewen Liverpool

N.—National Association for the Prevention of Consumption Lond. Secretary of New York State Commission on Ventilation National Sailors' and Firemen's Union Lond New castle-upon Tyne Corporation Clerk to the

O.—Sir William Osler Bart. Oxford Dr John O Conor Buenos Aires.

P.—Mr G Principato Messina Dr John Parkinson Lond.; Dr R J Probyn Williams Lond Dr M S Pembrey Lond; Corporal Ernest A. Paige C E F; Polish Information Committee Lond. Mrs. Paunett Liss Mr C D Page, Aylesbury; Provincial Board of Health Victoria Secretary of

Q.—Queensland Government Statistician Brisbane; Queen's University Belfast Secretary of

R.—Messrs Richardson and Co Lond Royal Society Lond Dr R R Rentoul, Liverpool; Dr C Riviere Lond. Dr G Rice, Sutton Lieutenant-Colonel George, Ranking Rockefeller Institute for Medical Research New York; Royal Medical Benevolent Fund, Lond, Secretary of; Royal College of Surgeons of Edinburgh Clerk of Dr J W Rob Weybridge; Mr Henry Rundle, Southsea Royal Sanitary Institute, Lond, Secretary of

S.—Mr W Soanes Lond Sports Club Lond Secretary of Messrs Spiers and Pond Lond. Dr Ettie Sayer Lond; Dr G E Shuttleworth Lond. Dr J Stewart Leeds Mr Frank Shuttleworth Lond. Mr Walter G Spencer Lond. Society of Members of the Royal College of Surgeons of England, Lond. Hon. Secretary of Mr James Sherren, Lond School of Physic in Ireland Dublin Registrar of Society of Apothecaries of London Secretary of Mr E W Scripture Lond Captain C F Strange R.A.M.C Miss E Shepheard Almora Senior Sanitary Officers Office, Accra Sheffield Corporation Medical Officer of Health to the Messrs G Street and Co Lond Southampton Corporation Clerk to the Messrs Siemens Bros and Co. Lond.

T.—Dr Wu Lien Teh, Harbin Miss M C Tod Corstorphine Dr C R A. Thacker Cambridge; Dr G L Turnbull Lond. Mr A. H Turner Sheffield; Dr Kenneth Taylor Rio Orangis

U.—University of Sheffield Registrar of University College Hospital Dental School Lond., Clerk to the

V.—Messrs J W Vickers and Co Lond. Mr Magnus Volk, Brighton; Vancouver Medical Association Librarian to the

W.—Mr Edwin Wooton Lond., West London Hospital Post Graduate College Dean of Dr Hugh Woods Lond Dr R A Walker Peterborough Mr A Wilson Lond. Captain Russell Wilkinson R.A.M.C Messrs J Woolley Sons and Co, Manchester; Dr G A. Wyon, Lond.; Messrs. R. F White and Son Lond. Major A. E Webb-Johnson D S O., R.A.M.C France, Dr J D Wynne Clonmel Dr Harold Waller Lond.; Captain C C Weeks R.A.M.C Captain E W A. Walker Mr J Walker Peterborough; Dr John Weir, Lond

Y.— Yearly Contract "

Letters, each with enclosure, are also acknowledged from—

A.—A R

B.—Mrs, Bell New Brighton, Messrs. Butchart and Rennet Aberdeen Barnsley Corporation, Accountant to the Bradford Corporation Treasurer to the Messrs Bennett Bros Salisbury Mr H. Butterfield Peterborough Bishopstone House Bedford, Medical Superintendent of Bristol Royal Hospital for Sick Children Secretary of; Messrs Bouveau and Chevillot, Paris; Mr G P Butcher Plymouth; Messrs C Birchall Liverpool Mr W Blenkin York Bolingbroke Hospital Secretary of Mr G E Brooke, Singapore Dr E Bejean Paris

C.—Dr Chatelain Goodmayes Dr J F Corson, Colinton Surgeon H Carlill R.N Lond Chesterfield Hospital Secretary of Casein Ltd Lond. Dr H B Campbell Norwich U.S.A.

D.—Mr D Lloyd Davies, Lond.; Dr C C Dalta, Anita; Miss L Digby, Lond

E.—Mr A R Elliott New York Mr E Evans Felinfach E H. Messrs Elliott, Son and Boyton Lond.

F.—Mr J H Frazer, Lond; F H R; Messrs. Fletcher Fletcher and Co, Lond

G.—Guardian Assurance Co Lond Dr S Gill Formby; Messrs. Grantham and Co Reading Lieutenant N G H Gavin R.A.M.C France Dr A. G M Grant, Grange over Sands Messrs Gilvard Bros Bradford Messrs Gimber and Son Lond; Messrs Galbraith and Co Lond

H.—Dr J J Holt, Middleton Mr H F Hyde Worthing; Mr J Heywood Manchester Huddersfield Corporation Accountant to the Lieutenant F Heatherley R A M C Lond Mrs B Hill Lond

J.—Jeyes Sanitary Compounds Co, Lond. J P B

K.—Mrs de Kingcome, Lond Major Kynaston R.A.M.C Kapok Industrial Co Lond., Messrs D J Keymer and Co, Lond

L.—Mr H Le Soudier Paris Professor Leyton, Leeds Leeds Corporation Treasurer to the; Lord Mayor Treloar's Cripples Hospital, Lond Secretary of Messrs H K. Lewis and Co Lond. London Throat Hospital Secretary of L. G; Leeds Public Dispensary Secretary of Mr H Le Brasseur New port

M.—Mr J Milner Bournemouth Dr J D McVean Oldham Manchester Hospital for Consumption Secretary of M P Dr J Masson St Helens; Dr J A Murray Lond.; Lieutenant L S Machado I M S; Messrs Menzies and Co, Glasgow Mrs Marshall Lond M L

N.—Mrs. Ness Glasgow Captain F J Nattrass R.A.M.C; Norwood Sanatorium Beckenham Nottinghamshire County Council Nottingham, Clerk to the; Norwich Public Library Librarian to the

O.—Mr E H B Oram Lond. Captain F J O Malloy R.A.M.C, Lond.

P.—Mr C E Pronger Harrogate; Pearson's Antiseptic Co Lond Dr A Porto Rito de Janeiro; Mr C D Page Aylesbury; Dr D Purdie Wakefield

R.—Dr M J Ryan Crumlin Royal Albert Institution Lancaster Secretary of The Retreat York Secretary of; Royal Devon and Exeter Hospital, Secretary of Dr W Robertson St Marks S Africa; Professor Ruata Perugia.

S.—Dr F A Stoney Lond; Mr G F Darwall Smith Lond S G M S S G Stretton House Church Stretton Medical Superintendent of Messrs W H Smith and Son Birmingham; Dr E H Shaw Lond Dr W T Shanasy Adelaide Dr Eliot Swainston Lond.; Mr G E. Skilros Lond Swiss Bankverein Lond; Dr W G Smith Dublin

T.—Mr J Thin Edinburgh Sir St Clair Thompson, Lond Mr L L Thain Lwyas Harol Captain D C Taylor R.A.M.C France

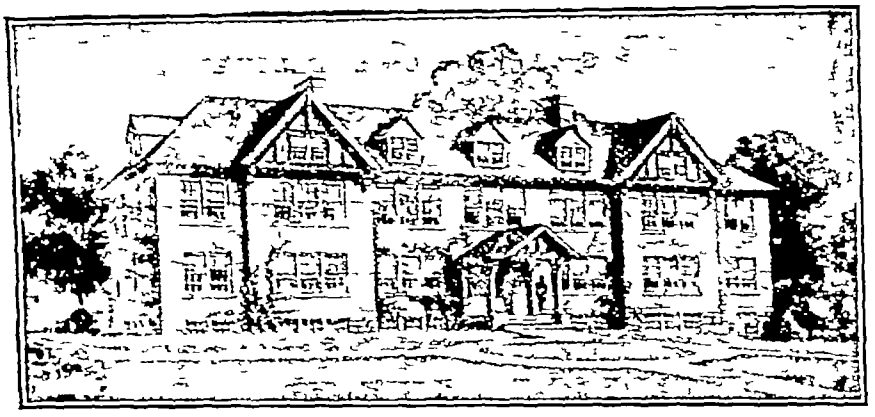
W.—Messrs. Whiteley Lond; Re Dr West, Selsley

Quality and Safety Assured

The Mulford Biologicals are Protected by Every Safeguard

The care taken in every step of the preparation, testing and finishing of the Mulford Biologicals safeguards their purity and activity A special hollow tile and concrete laboratory, practically a fireproof monolith, is devoted to filtering, labeling and finishing the tested products The building is divided into separate departments, each constituting a complete unit.

Operating Room.—The animals are bled in a special building erected and equipped with the same care as the operating room of a modern hospital. In a different group of rooms the serum is separated from the blood and placed immediately in special refrigerating rooms



A MODEL LABORATORY DEVOTED TO FILLING LABELING AND FINISHING THE MULFORD BIOLOGICAL PRODUCTS

After the serum is subjected to careful and rigid physiologic and bacteriologic **tests,** confirmed in duplicate by double and independent check tests, it is delivered to the antitoxin filling rooms

Air Washing and Humidity Control—The twenty filling and serum rooms are supplied with washed and filtered air, insuring aseptic conditions Humidity and temperature are controlled, giving ideal working conditions for the employes

Arrangements for Visitors.— Glass partitions between the halls and working rooms permit the demonstration of the work to visitors

The Unit System—The Mulford Laboratories are arranged and managed throughout under the unit system. Separate buildings and departments are devoted to the preparation, standardization, packing and shipping of each product. Each unit is in charge of an expert in the particular branch. Special refrigerating rooms, supplied with cold air from a central plant, form an important part of each individual unit. This makes it possible to carry a large stock of biologicals without any danger of deterioration, so that at all times the laboratories are prepared to meet the demands created by epidemics.

Containers—The Mulford Antitoxin and Bacterin glass syringes, together with special apparatus employed in experimental work, are manufactured in the glass factory located within the laboratory grounds

H. K. MULFORD COMPANY, MANUFACTURING AND BIOLOGICAL CHEMISTS

Philadelphia and Glenolden, U S A.

LONDON: 119 High Holborn, W. C.

Distributing Agents for Great Britain: THOMAS CHRISTY & CO, Old Swan Lane, London, E C.

Fellows' Compound Syrup of Hypophosphites

1866—1916

Not a new-born prodigy or an untried experiment, but a remedy whose usefulness has been fully demonstrated during half a century of clinical application

For 50 Years The Standard

℞ Syr Hypophos Comp FELLOWS'

Reject < Cheap and Inefficient Substitutes
Preparations "Just as Good"

THE FELLOWS MEDICAL MANFG. CO. LTD. MONTREAL & NEW YORK

ADRENALINE CLIN

(HYDROCHLORIDE)

Adrenaline Clin crystallized chemically pure, corresponds to the formula $C^9 H^{13} N O^3$ (according to Furth Stolz Jowet and Bertrand) It presents all the properties that characterize substances of definite chemical composition so that it is possessed of maximum activity and absolute uniformity of physiological action and therapeutical effects

SOLUTION of ADRENALINE CLIN 1 in 1000
In phials of 5 and 30 cc.

COLLYRIUM of ADRENALINE CLIN 1 in 5000 and 1 in 1000
Drop bulbs of 10 cc.

Combinations: COLLYRIA CLIN, Adrenaline-Cocaine and Adrenaline-Eserine.

GRANULES of ADRENALINE CLIN 1/4 milligramme each.

SUPPOSITORIES of ADRENALINE CLIN 1/2 millig, each

CLIN STERILISED TUBES of 1 cc. for hypodermic injection

ADRENALINE (hydrochloride) alone 1/2 and 1/10 mg per cc. (Box of 10 tubes)
ADRENALINE in combination *(COCAINE, STOVAINE, ALYPINE)* in boxes containing 6 or 12 tubes

CLIN LABORATORIES, PARIS—F H MERTENS, 64, Holborn Viaduct, LONDON, E C.

Observations

ON

THE DEVELOPMENT OF THE REGULATION OF TEMPERATURE AND ITS CLINICAL SIGNIFICANCE[1]

By M S PEMBREY, M A, M D Oxon.,
LECTURER ON PHYSIOLOGY GUY'S HOSPITAL, ETC

A WARM BLOODED animal is distinguished from a cold blooded one by its capacity to maintain the internal temperature of its body at a level which is almost the same in the depth of winter as in the height of summer This power of regulation is not possessed by all animals and is not developed equally among the warm blooded animals; its evolution can be traced in the animal series and in the individual bird or mammal during its passage from immaturity to maturity Some mammals such as the hibernating animals, have retained some of the characteristics of their cold blooded ancestors, for during the winter they become torpid and pass into a cold blooded condition Upon these points the data which have been collected within recent years have yielded most interesting evidence in support of the Darwinian theory of évolution

REGULATION OF TEMPERATURE IN VARIOUS CLASSES OF ANIMALS

A rudimentary power of regulation is found in several groups of the cold blooded animals. Insects as a class are cold blooded, but many observations have shown that bees in a hive can maintain a temperature considerably above that of the external air Vipers and pythons may have a temperature ten degrees above that of their surroundings The lowest mammals the monotremes, possess only an imperfect power of maintaining their temperature at a constant level, the average temperature of the *echidna* and ornithorhynchus is 29 8° C (85 6° F.) when the air is 15° (59°) and shows a considerable variation when the temperature of their environment is changed, the echidna hibernates for a period of four months. A *further link* between the two great groups of animals, the cold blooded and the warm blooded, is found in those higher mammals such as the marmot, dormouse, hedgehog, and bat which hibernate during the winter, they have acquired the power of regulating their temperature but at the same time have retained some of the physiological characteristics of their cold blooded ancestors The temperature of these animals is inconstant, even during the summer and in winter, when they are torpid, surpasses but little that of their surroundings

The temperature of newly born pups kittens, rabbits and rats falls when they are removed from the warm surroundings afforded by their dam and continues to fall until it reaches a point a few degrees above the temperature of the air Newly born guinea pigs, on the other hand, are able to maintain their temperature if the exposure to cold be not excessive, they are at birth in a condition of great development they are well covered with fur, their eyes are open and they are able to run about On these grounds the young offspring of warm blooded animals can be placed in two classes—those which at birth are blind helpless in some cases naked and unable to regulate their temperature and those which are born in a condition of greater development and capable of maintaining the heat of their bodies at a fairly constant level Young birds can be classified in a similar manner the pigeon is an example of the former, the chick well represents the latter class Two members of the first class respond to changes of external temperature in a manner similar to that of the ordinary cold blooded animal Their combustion as measured by the output of carbon dioxide varies with and in the same direction as the temperature of their surroundings The representatives of the second class increase their combustion when they are exposed to cold; they resemble warm blooded animals The development of this power of regulating the temperature of the body by appropriate variations in combustion can be traced in the embryo chick. In infants this capacity is imperfectly developed at birth, and evidence will be given later that this applies to the regulation of the loss as well as the production of heat

The evolution of the warm blooded animal has been traced, but the nature of any structural changes which are essential for the transition from the cold blooded stage is unknown. The search after gross morphological differences would appear to be a fruitless one, for the capacity to regulate temperature may be suspended and restored under natural conditions of hibernation, and by its very nature can be studied only in the living animal Observations of physiological as well as pathological conditions indicate that the most important factors are the coördination of the nervous control over the skeletal and vascular muscles in response to sensations of heat and cold

FACTORS CONCERNED IN REGULATION OF TEMPERATURE

The nature and value of the factors upon which an animal's capacity to regulate its temperature depends must now be considered Life in all organisms, whether they be animal or vegetable, simple or complex, is accompanied by chemical change and the production of heat The living tissues require a high internal temperature for the due manifestation of their activities, the warm blooded animals maintain this favourable condition by a constant struggle against cold and heat, the cold blooded animals have not acquired this property, and within limits the activity of their tissues depends upon the external temperature Both of these conditions are advantageous to the respective groups of animals in the struggle for existence; the warm blooded animals are able to live a more ardent life, unbroken by long periods of inactivity or torpor, and within wide limits independent of the temperature of their surroundings The constant exercise of the different organs of the body especially of the nervous and muscular systems, must lead to greater development of the nervous system, and with it the intelligence of the warm blooded animal On the other hand, the food supply of the cold blooded animals depends upon the external temperature, a period of torpidity, therefore, in which the activities of the tissues are reduced to the lowest ebb consistent with the retention of life, tides the cold blooded animal over the winter when the food is scarce and prolongs its life beyond one brief summer

The heat of an animal will remain at a constant level when the loss and production of heat balance Combustion can be augmented or diminished only within certain limits, it is economical, therefore for the superior animal that he should be able also to control his temperature by variations in the loss of heat from his body The development of the latter power depends upon the increasing control exerted by the nervous system upon the body in response to sensations of heat and cold, this is seen in the attitude assumed, the vascularity of the skin the activity of the sweat glands, and the ventilation of the lungs

It is in the regulation of the production of heat that one of the most difficult physiological problems is found How is it that the higher animals are able to struggle successfully against the general law, *that* cold diminishes and heat increases chemical activity? The cells of warm blooded animals are not exempt from this law, for isolated from the nervous control of the animal they respond to heat and cold in a manner similar to that seen in typical cold blooded animals In the healthy body of the higher animals the chief cells are not put to this test, they have their own internal environment and are not subject to fluctuations in the external temperature for in response to the sensation of cold the central nervous system causes the glands, and especially the muscles to produce more heat, on the other hand, a sensation of heat results in diminished activity of those organs The voluntary muscles are the most important sources of heat for not only are they the seat of great chemical changes during contraction, but they form between 40 and 50 per cent of the weight of the body The regulation of the production of heat demands the constant control of the central nervous system over the skeletal muscles

THE CENTRAL NERVOUS SYSTEM AND TEMPERATURE REGULATION.

The dependence of the temperature of the warm blooded animal upon impulses passing to and from the central nervous system is apparent from a consideration of the

[1] It is an abstract of the Oliver-Sharpey lectures delivered before the Royal College of Physicians of London

means whereby the power of regulating temperature can be diminished, suspended, or abolished Such means are (1) sleep, (2) hibernation, (3) anæsthetics, (4) alcohol, (5) curare, and (6) lesions of the central nervous system

1 *Sleep* —When nervous and muscular activity are reduced to the natural minimum during sleep the temperature of a healthy man falls to its lowest point The chief factor in the daily variation in temperature is the alternation of a day of activity with a night of rest, a reversal of the ordinary routine, the turning of night into day, brings with it a corresponding change in the temperature In nocturnal birds the temperature rises during the night and falls during the day Muscular activity signifies increased production of heat There is evidence, however, that during sleep the capacity to regulate temperature is diminished, and this appears to apply to both heat and cold Extremes of external temperature are less bearable during sleep, as shown by the fact that a man sleeping in his clothes finds it too cold in winter and too hot in summer This diminished capacity appears to be one of the factors to account for the frequency of night sweats, especially in children, and of cases of heat stroke at night

During the deep sleep which follows fatigue the sensitiveness of the nervous system is so reduced that the regulation for extreme cold fails, the unconsciousness of sleep gradually passes into the unconsciousness of collapse, and the man dies "frozen to death," it is said, but in reality killed long before his temperature falls to zero The activities of the tissues, once the nervous control is lost, are reduced by cold, there is less and less chemical change accompanied by the production of heat, and at an internal temperature about 20° (68°) life ceases Experience has too often shown that the weary traveller who gives way to the imperative desire to sleep upon the line of march is doomed to death when there is no protection from extreme cold

2 *Hibernation* is the only natural condition in which the suspension of the capacity to regulate temperature can be traced in all its stages During torpidity the mammal responds to changes in the external temperature in a manner similar to that seen in a cold blooded animal

3 *Anæsthetics* —In deep anæsthesia the activities of the body are reduced so profoundly that the production of heat is diminished The influence of the anæsthetic is manifested especially on the central nervous system Sensations of heat and cold no longer arise, or should they arise no longer reflexly produce decreased or increased activity of the skeletal muscles or the muscles of the blood vessels Control over both production and loss of heat is lost The internal temperature of animals anæsthetised by chloroform, ether, or chloral will fall to 22° (71 6°) when they are exposed to moderate cold, and it is the cold rather than the drug which brings about a fatal issue Although such animals may have in their fur a good protection against loss of heat their temperature falls, they can no longer assume the natural coiled posture which diminishes the loss of heat, and owing to their muscular inactivity they produce far less heat The combustion in the body can be measured by a determination of the respiratory exchange, this is reduced during anæsthesia, even if the external temperature remains the same, and much more so if the surroundings become colder The response of the anæsthetised mammal to heat and cold resembles that of a normal cold blooded animal

4 *Alcohol* causes a fall in temperature, not, as is popularly believed, an increased heat of the body It is true that after drinking alcohol there is a feeling of increased warmth, but this is due to the greater vascularity of the skin and the activity of the sweat glands Alcohol appears to act in two ways, in ordinary doses it has little or no effect on the production of heat in the tissues, but increases the loss of heat by causing the cutaneous vessels to dilate, stimulating the sweat glands and quickening the circulation The normal reaction to cold increased production of heat and constriction of the blood vessels of the skin, is partly paralysed by large doses of alcohol, with the result that drunkards exposed to cold are quickly "frozen to death" Poisonous doses may cause a fall of 5 or 6 or even 10° centigrade, many of the lowest temperatures recorded in man have been observed in drunken persons exposed to cold On the other hand, the disordered regulation of temperature produced by heavy drinking may show itself in a rise of temperature during work in, or exposure to, a hot and moisture laden atmosphere

5 *Curare* paralyses the voluntary muscles and thus deprives the warm blooded animal of its control over the chief seat of the production of heat The curarised animal resembles a cold blooded animal

6 *Lesions of the central nervous system* —Much controversy has arisen concerning the nature of the effects produced by injuries of the nervous system Different observers have found that lesions apparently similar have caused in some cases a rise, in others a fall of temperature The controversy has continued for over a century, since the observations and experiments of Benjamin Brodie in 1811, but it would be an unnecessary task to attempt to review all that has been said and done upon the subject Fortunately this can be avoided without throwing discredit upon the discordant results obtained by different observers, for in many cases it can be shown that different external conditions produce opposite results in the temperature of the body

The consideration of this complex subject will be facilitated by an examination of the effect produced by lesions localised in the different parts of the nervous system The cerebrum has been removed from pigeons and dogs and the animals have been kept alive for months The capacity to regulate the temperature is not lost, the animal shows a daily curve in its temperature, responds appropriately to sensations of heat and cold, but cannot maintain its temperature perfectly if it is left for long in a cold room In these animals, it is important to remember, the motor and sensory paralysis produced by the operation is relatively small In man the temperature of anencephalic monsters does not appear to have been investigated in detail, but there is on record the case of an infant, 8 months old, in whom the cerebral hemispheres were absent owing to a congenital defect, in this case the temperature remained constant during the two months or so that the infant was under observation in the hospital and no disturbance in regulation was noted

Injuries to the corpus striatum and the optic thalamus produce so frequently a disturbance in temperature that these ganglia have been described by many observers as the special "heat centres" which regulate the production and loss of heat in the body There are difficulties in this localisation The corpus striatum is a prominent organ in all the vertebrates, the cold blooded as well as the warm-blooded, phylogenetically it is a very old structure, the basal portion of the fore brain The optic thalamus is a part of the inter brain, and at one stage in the development of the vertebrates it appears to have served with the corpus striatum as a brain In the mammals the function of the corpus striatum is obscure, but according to Hinnier Wilson, it exercises a steadying effect on the action of the cortico spinal system by means of the lenticulo rubro-spinal system or more indirectly by the optic thalamus and its cortical connexions In the dog the corpora striata and parts also of the optic thalami were removed with the cerebral hemispheres by Goltz, the animal lived for a long time, and its capacity to regulate its temperature, although diminished in range, was not lost Similar results have been obtained by other observers Removal of the mid brain as well as the fore brain destroys the capacity to regulate temperature It would appear that punctures o lesions of the corpus striatum have an augmentor or an inhibitory effect upon the incoming and outgoing nervous impulses which are concerned in the reception of sensations of heat or cold and in the coördination of the activity of the various organs of the body, especially the skeletal muscles and the muscles of the blood vessels In agreement with this view is the fact that lesions of the crura cerebri and pons may be accompanied in some cases by a rise in others by a fall in the temperature of the body

After complete transverse section of the spinal cord the temperature may rise above the normal (hyperthermia) fall below the normal (hypothermia) or remain at the normal level according to the site of the lesion and the external conditions, but in all cases the capacity for regulation is impaired In a paraplegic animal the anterior portion of the body responds to changes of external temperature in the manner characteristic of a warm blooded animal, the posterior or paralysed portion, on the other hand responds to such changes as does a cold blooded animal The effect

observed when the external temperature rises or falls is the resultant of these opposite tendencies In the paralysed parts there is no control over the production and the loss of heat, the production rises and falls *with* the temperature

The experimental evidence supports the view, already suggested by the development of the power of regulation that the capacity is not accompanied by the appearance of any special structure in the animal but is associated with the control of the nervous system over the muscles and glands and with increased sensibility to changes of temperature. There is no satisfactory evidence of the existence of special heat centres

THE CLINICAL SIGNIFICANCE OF THE DEVELOPMENT OF THE REGULATION OF TEMPERATURE.

In clinical work little attention has been paid to the development of the nervous control over the temperature of the body, although there are many problems upon which it would throw light. A few examples may be given

Points in Relation to Infants and Children

Infants show no daily variation in temperature during the first few days after birth, for they have no definite periodicity, rest during the night and activity during the day For a similar reason the healthy young infant has a smaller range of temperature than that seen in a young child or adult At birth it does not possess the power of maintaining a constant bodily heat and its temperature will fall if it be exposed to moderate cold. It needs warmth and the most appropriate is that supplied by the mother's body, snug in bed in its mother's arms it is kept warm for the temperature of the mother's skin is about 35° (95°) and the air under the bedclothes may be as high as 30° (86°) The infant needs mothering and instinct is a safer guide than the smattering of science which teaches that the newly born child should be taken away from its mother in order that it may breathe purer air, not worry its mother nor run the risk of being overlain The infant requires warm surroundings for before birth it was protected against the loss of heat by the temperature of the uterus 37° (98 6°) or thereabout, it is less sensitive than the adult to slight changes in the gaseous composition of the air it breathes for during fœtal life it maintained its gaseous exchange with the mother's blood in which the pressure of oxygen is below and the pressure of carbon dioxide greatly above that of the corresponding gas in the air The danger of overlying arises almost entirely from drunken mothers and is much less serious for the race than the undermining of maternal instinct.

The regulation of the loss as well as the production of heat is imperfect in the infant, especially if it be a weakling Even when it is well clothed and kept in a room at 15 6° (60°) it may have a rectal temperature as low as 34° (93 2°) and may not show an appropriate response when it is sponged The vernix caseosa is a protection against excessive loss of heat and injury of the delicate skin notwithstanding the fact that it is regarded by the nurse as dirt to be removed as soon as possible by hot water and soap The old fashioned way the smearing of the body with oil has much evidence in its favour In premature infants the use of incubators for their rearing is a recognition of their incapacity to maintain their temperature, as in the case of cold blooded animals their exchange of material and growth will be stimulated by warmth depressed by cold Strong infants who respond to moderate cold by vigorous movements and lusty screaming do not require a high external temperature maintained at a constant level, a sturdy growth will be encouraged by exposure to variations of temperature, for the regulation of the heat of the body depends upon the activity of the muscles in response to sensations of cold In children's wards there is too often a failure to recognise that nutrition depends upon muscular activity which in turn is stimulated by cold a child covered up in bed is exposed to the warm air (about 25° C or 77° F) under the bed clothes and although it requires more sleep than the adult it also needs in relation to its size far more opportunities for muscular activity Ward discipline and convenience will not alter biological laws The inclination of a sick child to get out of bed and play is one of the best signs of improvement

In warm weather the loss of heat is diminished therefore less food for combustion but more liquid for evaporation is needed If muscular activity and its beneficial effect upon nutrition and growth are to be maintained the child must be lightly clad The chemical changes in a child's body are relatively greater both in quality and quantity than those of an adult and for this reason it is easier for the child to compensate for cold than for heat Guided by instinct, the child will adapt itself but trammelled by the ignorance of its elders, who have abandoned instinct for the conventions of modern civilisation it is placed at a serious disadvantage during a heat wave Especially at night time during warm weather the child should be allowed to lie exposed if it is so inclined, for healthy sleep is accompanied by a fall in temperature.

Other Examples of Clinical Significance

Another example of failure to recognise at first the relationship between muscular activity and the temperature of the body was seen in the modern treatment of consumptives by an open-air life and progressive muscular work In some sanatoriums it was the custom to order rest in bed for patients whose temperature showed a rise after exercise, because it was believed that the healthy man maintained a constant temperature Muscular work raises the temperature of healthy men and animals and the rise to the optimum is an advantage, for it favours the exchange of material upon which efficient work depends.

In practice the application of the modern theory that heat stroke is due to a hypothetical micro-organism is dangerous, it neglects the relation between muscular work and the regulation of temperature, which affords an adequate explanation of the disorder and of the success of the cold-water treatment

In anæsthesia the paralysis of sensation and voluntary movement is associated with the suspension of the capacity to regulate the temperature, the deeper the anæsthesia the greater the loss of control over the production and loss of heat. Numerous observations show that the internal temperature of the body falls during anæsthesia unless artificial warmth be applied. The typical response to changes of external temperature is no longer seen, the metabolism and heat of the body rise and fall with the external temperature The patient loses heat by the skin and the respiratory tract, it is possible to diminish or prevent the cutaneous loss by warm clothing and a heated operation table and the pulmonary loss by making the patient breathe air and anæsthetic vapour already warmed and moistened It is not necessary to have the temperature of the operation theatre raised to a tropical heat which diminishes the efficiency of the staff and introduces the danger of the sweat of the operators undoing their elaborate precautions against sepsis

Morphia blunts other sensations as well as those of pain and by reducing the excitability of the central nervous system diminishes the capacity to regulate the temperature There is evidence to show that in some cases at least the collapse observed in wounded soldiers who have been exposed to cold may be due to the large doses of morphia administered to them when they received first-aid As regards the action of alcohol attention has been drawn already to the diminished capacity of drunkards to resist cold or heat and the recognition of alcohol as an important factor in the incidence of heat-stroke

The disturbances produced in the temperature of patients by lesions of the central nervous system have attracted much attention, but the cases have been regarded as very obscure owing to the fact that lesions apparently similar may be accompanied in one case by no obvious change in temperature in another by a fall of temperature hypothermia in another by a rise of temperature hyperthermia, or in another by a sequence of all three conditions Regarded from the point of view of the theory of specific heat centres these cases are obscure but considered in relation to the development of the power of regulation of temperature such variations would be expected A complete transverse section in the lower cervical region of the spinal cord divides the living body into two parts the upper, under control of the chief sensory and motor mechanisms is warm blooded, the lower paralysed and relegated to its more primitive level resembles in its response to heat and cold a cold blooded animal The effect observed is the resultant of the opposite tendencies of the two portions of the body Treatment must be based upon a recognition of this condition

An adequate consideration of evidence in support of the foregoing remarks is impossible in the limits of an abstract but will be supplied when the lectures are published

An Address
ON
THE TUBERCULOUS SOLDIER

Delivered at the Annual Meeting of the National Association for Prevention of Tuberculosis, held on July 26th,

BY SIR WILLIAM OSLER, BART, M D, F R S,
REGIUS PROFESSOR OF MEDICINE AT THE UNIVERSITY OF OXFORD

GENTLEMEN,—No matter how well organised an army from the sanitary standpoint, we have to face the fact that the soldier takes with him to the field two great enemies, the tubercle bacillus and the pneumococcus In proportion as the incidence of the war pestilences, typhoid, typhus, dysentery, cholera, and malaria falls the importance of these civil germs rises In a group of above 50,000 picked work men at Panama for centuries the 'white man's grave," with the progressive control of yellow fever, dysentery, and malaria, and a fall in the general death rate to a point lower than in any American city, up went the curves of pneumonia and of tuberculosis, until, as in temperate regions, these diseases headed the list The Allied armies in the West have been singularly free from camp diseases—no cholera, typhus, or malaria, and extraordinarily little enteric Never before in history has so great a host been assembled, never before in any war have armies been so healthy The common civilian diseases have had their innings, and have played relatively the more important rôle—colds and coughs, rheumatism in many forms, and mild fevers When the mortality statistics of diseases are published from the army of the West the "best killer" will be found to have been the pneumococcus, a home bred germ, which the soldier takes with him or easily procures from a comrade A short sharp honest disease, pneumonia either kills at short range or recovery is rapid and without sequelæ

THE PROBLEM BEFORE THE NATION

Our business to day is with a very different germ, the longest range variety of all—the tubercle bacillus—and its martial relationship Three preliminary statements are necessary 1 In a majority of the cases the germ enlists with the soldier A few, very few, catch the disease in infected billets or barracks What percentage of men between the ages of 18 and 40 harbour the tubercle bacillus we do not know, but we do know that it is exceptional not to find a few in the bodies of men between these ages dead of other diseases 2 Of one million enlisted men between the ages aforesaid the proportion to develop tuberculosis is probably much smaller than if these men had remained in civil life It will be possible later to work out the exact incidence for comparison with the figures already available, but the circumstances of the soldier life as a rule do not weaken, but strengthen, the body s resistance Everyone must have been impressed with the beneficial change wrought by a year in the army upon the physique of the average town lad 3 Exposure, hardships in the field, injury drink, and syphilis may bring about conditions in the body favouring the development of bacilli already existing or which may gain access to it, and the soldier reports *sick* with tuberculosis of lungs, glands, pleura, bones, or brain

The problem before the nation is what to do with the tuberculous among about one tenth of the population who have undertaken its defence Even were a loyal gratitude to these brave fellows not involved, the obligation is plain to care for them in the best possible way—the doubtful cases to study, the early cases to cure, the incurable to succour to the end Society, itself directly responsible for the prevalence of the disease, owes this duty to the tuberculous whether soldiers or civilians I do not think we are to look for a great increase in the number of cases in that portion of the community which has undertaken military service. We are not going to double our tuberculous population, and are not to expect 70 000 deaths instead of 50,000 annually The question is simply one of extension and perfecting of existing organisations, extension for which the profession has been clamouring for ten or more years and the better ing of an organisation which unfortunately has radical defects Democracy "comes high" when parochialism is its final outcome Successful war can never be waged without a strong general staff with absolute subordination of the units Warfare against the Germans in two years has cost very many lives, but the tubercle bacillus in one year costs this country 50,000 lives In either case a strong central controlling machine is the first element of success We may hope so to perfect our war machine as to conquer the Germans within the three years, but where is the general staff which is to wage the next 30 years' war against consumption! Lethe-loving Molluscs we missed the golden opportunity of the Royal Commission a few years ago to establish national control of the nation's greatest domestic war, and instead of a Napoleonic campaign we have the guerilla warfare of the borough, county, and district council, with counsels of perfection in place of commands from the Local Government Board

NUMBER AND CLASSIFICATION OF CASES.

But let us review the conditions—the number of tuberculous soldiers, the classification of the cases, the existing machinery and its possibilities

Number of cases—In 1915, 2770 cases of tuberculosis were dealt with by the Chelsea Boards In reply to Mr Astor in the House of Commons on Feb 22nd, Mr Tennant stated that of these 1641 were awarded pensions and 1129 claims were not allowed We cannot say what proportion this total number bears to the enlisted force, but in any case it is small in comparison with the general incidence of the disease in the community I have tried to get the exact figures from several hospitals At the American Women's War Hospital, Paignton, among the first 3000 cases admitted there were only three cases of pulmonary tuberculosis (Dr Penhallow) At the Canadian Hospital, Taplow, among 6233 admissions there were 26 proved, and 16 doubtful cases (Captain Neff) This hospital serves a large section takes all classes, and at one time admitted many Territorials from local training camps The Paignton figures represent men admitted from France and the Mediterranean. 1 per 1000 is I am afraid, too low an estimate The Taplow figures are likely to be nearer the truth

Classification—In the first place, let us demand a careful sifting of the cases The label does not always mean tuberculosis Bone, joint, gland, and meninges offer no difficulties but tuberculosis of the lungs and pleura is beset with diagnostic pitfalls Make a primary separation into the two great groups of the open and closed pulmonary forms. With bacilli in the sputum the case is definite and in all stages we know what to do The closed case is a suspect, to be studied in a sceptical attitude; and not to be labelled tuberculous without the most critical scrutiny A large majority of us in this room are closed cases of pulmonary tuberculosis—that is to say we have small foci of infection in lung or bronchial gland Some day over the parapets rush the long entrenched enemy and a local flare-up in lung, with cough and fever or an acute pleurisy, are outward and visible signs of the attack Let us ask have the closed cases considered apart, labelled as su and carefully followed This is not the occasion deal more fully with this class One half of the cas I have seen are not tuberculosis The claims of t doubtful forms must be determined by experts So far the relation to service is concerned there are three group I The old *poitrinaire* who has slipped past the recruiti officer and the medical examiner A pathetic and com element blend in the story of these cases I saw the histo sheet the other day of a man who had been for four years i attendance at a tuberculosis dispensary with bilater disease but he slipped in, stood his training, and w actually sent to France On his way to a sanatorium fro Cheltenham a man with fever and bacilli in the sputu changed his mind and enlisted at Worcester! The consump tive has a never failing optimism and considers himse much better than he really is I have notes by Dr Stobie our tuberculosis officer, of 12 men in attendance at ou Oxfordshire dispensaries, all with bacilli who have bee passed for the army I pass round his notes II Health men with a past history of pleurisy or of pulmonary tuber culosis and in whom the vicissitudes of the soldier s life hav stirred up the old trouble Hæmoptysis after a route march pleurisy with effusion acute broncho-pneumonia with

return of the bacilli indicate the recurrence. III The healthy recruit who has either been infected in the army or has had a latent focus, one cannot say which We should make no difference in the treatment of these cases Even when mistakes have been made the country is responsible, and they are citizens as well as soldiers In an inquiry made by Dr McConnel in 13 sanatoriums out of 160 cases 90 were regarded as due to the war, in five other places "most or very many of the 84 cases were attributed to this cause"

THE EXISTING MACHINERY

Let us take the existing machinery in three stages of his career The tuberculous soldier comes under the Army rule that when a man is unfit for military service he is discharged As the decision of the Army Board is of 'the 'Medes and Persians' type, it is all-important that it should be made only after the most careful consideration of each individual case. Discharged tuberculous the civilians to whose care he is entrusted must take him as such with no shadow of doubt—is it not written on his discharge paper? And it is assumed that he will never again be fit for military service. Altogether it is a very black ball against a man's physique This stage has been dealt with in your Council s last report Last year, at the instance of Dr Theodore Acland Dr Perkins arranged a meeting of the Council with Sir Robert Morant Dr Newsholme, and Army representatives at which the matter was fully discussed The Council, I may say, was of opinion that much good would follow if the tuberculous soldier could be allowed sanatorium treatment before his discharge but this does not seem possible to arrange. So far stage No 1. Stage No 2 is more fully dealt with in the following paragraphs of the report —

Sir Robert Morant kindly attended a meeting of the Council of the Association and explained the machinery for dealing with the problem and the steps which his department took The Insurance Commissioners received notice from the War Office of all tuberculous soldiers who were about to be discharged from the Army They then notified the Local Insurance Committee to whom the man's case naturally belonged and by whom suitable provision was made the Commissioners paying £20 per case to ensure priority of treatment and so avoid delay before admission So far the cases dealt with had amounted to 1400, and Sir Robert assured the Council that in no single case had his department failed to find accommodation. There had of course, been individual instances in which men neglected to take advantage of the provision offered

Provision of treatment for the individual does not, however, end the matter An adequate pension must be granted This is the more necessary because, if he is discharged from the Army as has hitherto been the rule, the separation allowance on which his wife and children depend, ceases Anxiety for their welfare seriously interferes with the results of treatment, and as a matter of fact, the best class of man is apt to sacrifice his own future to return home and work for his family thus all prospect of lasting recovery vanishes In lieu of becoming a self supporting citizen for the future he tends to degenerate into a chronic invalid to become a burden on the community, and spread the disease

We all recognise how anxious Sir Robert Morant and his colleagues are to provide institutional treatment for tuberculous subjects To inquiries made in many places I have had as a rule satisfactory answers At Newcastle for example, I was assured recently that there had been no trouble and that they had empty beds On the other hand I have heard complaints of delays in getting into monetary touch with a Local Insurance Committee and in many places the sanatorium accommodation is wholly inadequate In Wales, where I have had the pleasure recently of inspecting many of the dispensaries and sanatoria, I was told that the supply of beds for soldiers was sufficient and I visited at Newport an excellently arranged special hospital for soldiers There is no reason why this stage No 2 of his progress should not be easily and satisfactorily arranged The machinery is there but it is not always possible to get the soldier to use it, too often he prefers to go home Dr Neff of Taplow Hospital tells me that not 1 in 10 of the English tuberculous soldiers will accept treatment! It is to be hoped that a large proportion of the men who receive treatment will be so improved as to be able to do light work with a pension as the nucleus of their support sick benefit and sanatorium benefit having come to an end The soldier then returns to his village and is taken charge of by the local committee of the National Society for Looking After the Disabled Soldiers and Sailors He is found suitable work, or trained in some remunerative occupation, and he finally graduates into the class of self-supporting citizens One important question—of the 2770 cases in 1915 only 1641 were rewarded pensions, the claims of the others were not accepted. Why?

Stage No 3, which one half of the cases will reach, offers serious difficulties Tuberculosis is essentially a chronic disease As Garth says "Her strokes are sure, but her advances slow" The soldier becomes a chronic consumptive, unable to work, perhaps without a pension, or with one insufficient to support his family, even with the permanent disablement allowance This is the man we must look after, but his case is beset with problems In the first place, his ship is adrift, neither Army nor Government at the helm The public must undertake to keep him off the rocks Officially we are helpless, as our rate charity, which should partake of the nature of a common chest at the disposal of a stranded brother, is too tainted for a self respecting man to touch At present these men are literally at sea, and in most places without proper guidance or care Many are able to do light work in the intervals of attacks of fever Past the sanatorium stage there is often no place for such patients to go as the general hospital does not like the open tuberculous Suitable hospitals for advanced cases are not common, and unless very attractive, home, even a wretched home, is preferred. Many such cases are living in surroundings impossible to keep aseptic, and the danger of infection is very great. I have gone over with one of our tuberculosis nurses the list of 15 discharged soldiers in Oxfordshire I will not worry you with details, many of which are most distressing but they show that the need of organised help for the men who have reached Stage 3 is urgent

SUGGESTIONS

Reviewing the whole subject the following suggestions appear to be in order

1 A more searching examination should be made of recruits Doubtful cases should be referred to the tuberculosis expert of the district Men unfit to be worked up to the soldier standard become simply material for pension claims

2 Army experts should decide upon the doubtful cases before discharge Provision should be made for their study There are plenty of tuberculosis specialists in khaki whose knowledge should be used to put these borderland cases into their proper categories

3 A national organisation should look after the welfare of the tuberculous soldier with subsidiary branches in each county A roll and a record should be kept and every case supervised with the greatest care As the man who suggests a new society in these days deserves to be shot I would urge that this National Association undertake the work, in coöperation with the Society for the After care of Soldiers A small central committee of these two bodies, with representatives of the Local Government Board and of the Insurance Commissioners, could organise after care committees in each county and bring official pressure to bear upon authorities to furnish the proper hospital accommodation

A public duty which is at the same time a privilege is not likely to be neglected, and the people of this country may be relied upon to care to the end for men stricken by disease while fighting their battles

---

THE King has given to Dr L C P Phillips, professor at the Government School of Medicine, Cairo, and physician to His Highness the Sultan of Egypt His Majesty s Royal licence and authority to wear the Insignia of the Third Class of the Order of the Nile which has been conferred upon him in recognition of valuable services rendered

PATRIOTIC SHOPPING —The medical profession, in common with other professional organisations, has taken means to protect the interests of its members who are on active service, and will view with sympathy the appeal issued by three Secretaries of State to extend the same consideration to those whose shops and businesses are likely to suffer from their absence The circular which is addressed to mayors and the chairmen of local authorities, deprecates the transfer during the war of customers patronage to other than their usual tradespeople

SERUM REACTIONS OF 300 UNSELECTED CASES OF "ENTERIC"* WITH THE OXFORD STANDARD AGGLUTINABLE CULTURES

BY ERNEST GLYNN, M A, M D CANTAB, F R C P LOND,
CAPTAIN R A M C T PATHOLOGIST FIRST WESTERN GENERAL HOSPITAL PROFESSOR OF PATHOLOGY UNIVERSITY OF LIVERPOOL

AND

E CRONIN LOWE, M B, B S LOND,
PATHOLOGIST ST JOHN'S HOSPITAL, SOUTHPORT

(*From the Thompson Yates Laboratory*)

DURING the last few months a large number of "convalescents" from the Eastern Mediterranean have entered the Auxiliary Hospitals of the First Western Command with a diagnosis of typhoid or "enteric," and some with a diagnosis of paratyphoid As nearly all have been recently inoculated against typhoid though not against paratyphoid, it seemed to us highly probable that many of the cases were wrongly diagnosed as typhoid, especially as a large number had certainly suffered from dysentery Because practically all were "convalescent," and nothing could be learned by blood cultures, and very little by examining the excreta we attempted to arrive at a bacteriological, and therefore correct, diagnosis, by testing the agglutination reactions with the Oxford Standard Agglutinable Cultures of typhoid and paratyphoid A and B

The work was commenced in the second week of November Three hundred unselected cases were examined, drawn as far as possible consecutively, from St John's Hospital at Southport, the Liverpool Royal Infirmary, the Liverpool Tropical School Auxiliary Military Hospital, and the Mill Road Auxiliary Military Hospital Most of the work was done in the Pathological Laboratory of the University of Liverpool, the rest in Southport

Agglutination Technique

The technique was carried out exactly as recommended in the "Directions" issued from the Department of Pathology,[17] Oxford University, on behalf of the Medical Research Committee In order to save time many pipettes were used, and the drying of the pipettes and agglutination tubes after washing was hastened by placing them in a hot oven The agglutination tubes were incubated in a water bath at 55° C, and kept at that temperature by placing the bath in a paraffin oven supplied by Messrs Baird and Tatlock, the oven accommodated eight racks of tubes After two hours' incubation the tubes stood for from 10 to 15 minutes at room temperature, and then the readings were taken This was done in a cupboard with a black background containing an electric lamp, the cupboard prevented daylight of varying intensity diffusing into the electric light, and so causing the readings taken during the day or night to differ Some such apparatus as this is essential for accurate work, especially if the readings are taken by different observers

The readings were all taken by one or other of us but the technique in fully a third of the cases was carried out by a laboratory assistant who was quickly taught Every serum was tested to typhoid, paratyphoid A, and paratyphoid B, the dilutions being 1–25, 50, 125, 250, also, if necessary, 1–500 1000, 2500, 5000 Frequently there was an agglutination with sedimentation in a tube e g, 250, and no agglutination whatever in the next e g 500 In such cases the agglutination titre is indicated in our paper by 250 +

Agglutinin units —In order to ascertain the number of "standard agglutinin units" it is necessary to divide the titre by a figure given on the bottle During our work this denominator for paratyphoid A varied from 2 7 to 4 1 and for paratyphoid B 2 7 to 3 5 a change which had no appreciable effect on our results The figure for typhoid however, gradually rose from 4 7 to 7 7 In certain cases this change raised the agglutination titre—e g, Case 9, paratyphoid A series first examined seven weeks after convalescence, titre 125 (denominator 5 6), three subsequent examinations, titre 250 (denominator 7 7) If such an alteration in the emulsion has undoubtedly caused an apparent rise in titre we have assumed, when interpreting our results, that there has been no change in titre We have found the Oxford emulsions most satisfactory On rare occasions they become cloudy after frequent use, probably from bacterial contamination

Collection of blood —Our greatest practical difficulty was to obtain sufficient blood to yield the necessary six complete drops of serum We found it necessary to direct special attention to the following points (*a*) Wright's capsules Those supplied by many firms are too small and not properly shaped The lumen of the tube should be at least ¼ inch in diameter, the length excluding the tapering end 1½ inches The curved end should be of wide diameter and short, otherwise the large drops of blood will not flow quickly into the tube, and fall on the floor (*b*) Collecting the blood The patient was instructed to hang his arm down or, better, to swing it round several times If necessary he soaked the hand in hot water to cause vascular dilatation A rubber catheter, not a piece of tape, was bound round the finger as far as the terminal phalanx, and the back of the finger pricked near the nail with a large triangular surgical needle, size No 1 An ordinary needle does not make a large enough hole If enough blood was not obtained the rubber was removed and after the finger had been massaged it was reapplied 0 75 of a c c of blood is sufficient The blood was collected by the ward sisters, who became experts after a little tuition

Accuracy of Technique

Hort[9] stated, although employing Dreyer's emulsions "We do not find the drop method of sufficient accuracy for routine work on a large scale" After making over 3000 examinations we disagree with this statement, for example Sixty six consecutive convalescent cases of "enteric" had their agglutinins estimated on four occasions at intervals of about a week, about 80 per cent of the tests were done by one observer In 34 convalescents all four tests gave the same titre, including 5 convalescents in whom the titre rose one tube due to a change in the emulsion denominator from 5 6 to 7 7 In 15 convalescents three tests gave the same titre, the variation in the remaining test was a rise or fall of one tube only, in 10 cases this variation was probably due to technical error, and in 5 cases to alteration in agglutinin titre In 15 convalescents two tests gave the same titre, 10 showed a variation in one tube only 5 of which were probably due to error, and the other 5 showed a variation of two tubes only none of which were probably due to error In 2 convalescents every test gave a different titre the extreme variation being three tubes, none of which were probably due to error

In our experience an alteration in titre in one tube only in successive tests with the same emulsion probably indicates an alteration in the amount of agglutinins, though it possibly indicates an error, whereas an alteration of two tubes certainly indicates an alteration of agglutinins, so long as gross carelessness can be excluded It is quite true that greater accuracy would be attained by using "considerable volumes" of serum, as Hort suggests, instead of drops This, however, is not practicable in most laboratories in war time, as it would require so much blood and more apparatus It is quite true, also that greater accuracy would be attained if the intervals between the tubes were less than 25, 50, 125 &c, for then the exact "end point" would always be reached, but this would again demand more time and apparatus

Some of our errors were probably due to using slightly hæmolysed blood, for with it the "end point" is more difficult to read, to not always obtaining six full sized drops of serum, owing to insufficient blood being taken, and, perhaps, to keeping the blood on certain occasions three or four days before testing It is probably advisable to hold the dropping pipette at the same angle when distributing the drops, and to use a separate pipette for each sample throughout the dilution technique

In our opinion the macroscopic method as perfected by Dreyer and his collaborators is eminently suitable for routine work on a large scale in war time, particularly for bacteriologists without any previous training The technique itself can easily be mastered by an intelligent orderly after a short time The method also has this great advantage it is a successful and scientific attempt to standardise "enteric"

* Enteric Fever:—Varieties: (*a*) Typhoid Fever (*b*) Paratyphoid Fever" See 1916 edition Nomenclature and *Classification of Diseases* Royal College of Physicians (at present in the press) THE LANCET 1916 vol i p 837

glutination tests and therefore to make the results obtained different laboratories strictly comparable

It is impossible satisfactorily to compare results obtained using different macroscopic or microscopic techniques id emulsions of different densities of sometimes dead and metimes living organisms derived from different strains ten of doubtful parentage, of different inherent agglutinative capacity, cultivated on different media for different eriods of time, perhaps at different temperatures, and, last ut not least, of using different standards for positive or egative results

The average Briton unfortunately is a "conscientious bjector" to employing standard methods and apparatus t interferes with the "freedom of the individual" The Medical Research Committee has if we may be allowed to say o, acted most wisely not only in advertising this particular 'standard method' but also in supplying the apparatus and mulsions free to all R A M C officers, and if it was generally dopted the ultimate gain would far outweigh any temporary oss, due to change of technique

Controls —We have tested the diagnostic value of standard emulsions by various controls and found that the serum of those vaccinated against typhoid or convalescent from typhoid produces no co-agglutinin for paratyphoid A or paratyphoid B 1-25 On the other hand, typical para typhoid A bacilli have been isolated from the excreta of 4 convalescents, typical paratyphoid B bacilli from 8 and typhoid from 2, by other workers in the laboratory—namely, Dr Vera Foley Dr Mary Price and Dr A L Robinson, the sera of all 14 convalescents agglutinated the corresponding emulsions in titres ranging from 1-25 to 1-500

Results

Clinical —Seventy eight per cent were admitted with a diagnosis of typhoid or "enteric," and 22 per cent of para typhoid or stated that paratyphoid was a second diagnosis, 4 stated they had paratyphoid A and B Ninety three, i e 31 per cent. said that the first diagnosis was dysentery while 112 i e 37 per cent, gave a history of severe diarrhœa with a passage of blood and slime, often with straining Eighty five per cent. had apparently contracted "enteric" on the G—— Peninsula and the remainder in E——, M——, or elsewhere Every patient was also asked whether blood was taken from the arm, i e for blood culture, from the finger or ear on a slide, i e for malaria, or in a tube, i e. for agglutination test The date of reporting sick, which was usually remembered to the very day and the duration of the illness until they were allowed to get up for the first time, was also ascertained in each case Thus we were able to obtain a rough idea of the date of the beginning of convalescence †

Of 260 men who were questioned 254 stated they had been inoculated against typhoid, 1 refused inoculation, 1 had not been inoculated, 4 were not sure, 40 men, all examined in November, were not questioned Six stated that they had been inoculated against paratyphoid in 1915, 4 of them were inoculated in August or later, 3 at M—— and 1 at A——, the details for the others were not ascertained. Three of these cases agglutinated typhoid and paratyphoid A only 1 typhoid only while 2 agglutinated neither typhoid nor paratyphoid A or B in 1-25

We do not attach undue importance to the statements made by the soldiers but must say that on the whole, their answers were very intelligent and quite definite, much more so than those of the average hospital patients Practically everyone knew his maximum temperature, and knew whether he passed blood or slime One or two were not quite certain whether their blood was examined as they had been delirious Hardly any knew whether their excreta had been examined and if so with what results

Serological —Prophylactic typhoid vaccination almost always produces more or less typhoid agglutinins which usually persist for months or even years Consequently, as Dreyer and his co-workers point out (1) a serological diagnosis of active typhoid in the inoculated cannot be made without two or more successive examinations separated by "intervals of a few days to see if any variation in the typhoid titre occurs, and (2) a serological diagnosis of active paratyphoid can be made in persons who have not been inoculated against paratyphoid by one examination only for "agglutination in a dilution of 1-25 justifies a strong suspicion of paratyphoid infection marked agglutination in a dilution of 1-50 or more is (nearly always) diagnostic of active paratyphoid infection" [17]

In almost all of our 300 cases the febrile period was passed and *convalescence* well established, consequently the first of these principles will not apply Dreyer,[4] however, also states that in typhoid convalescents who had not been inoculated against typhoid, the typhoid agglutination titre "will always show a definite and measurable diminution of titre in the course of a week or two" One would naturally therefore expect that in typhoid convalescents who had been inoculated against typhoid the typhoid agglutination titre would also show a diminution in the course of a week or two, though the titre would not fall below the "higher base line" which is found in the inoculated One would also expect that the paratyphoid titre in paratyphoid convalescents would show a measurable diminution in a week or two Unfortunately, owing to war conditions, it has been impossible for us to test the agglutination titre of every convalescent on two or more occasions and at the same intervals, nevertheless 216 were tested more than once, usually three or four times

Tidy[14] has stated recently that "there is evidence that marked pyrexia, perhaps 102° F for five days, is associated with diminution or complete disappearance of" typhoid inoculation agglutinins "These agglutinins may return, but *usually do not*" (italics ours) He infers, therefore, that "a positive agglutination reaction to B typhosus after the fifth day of pyrexia has the same value in an inoculated as in an uninoculated person" Tidy has published very little evidence in support of his rather revolutionary statements, besides, he employed a microscopic method, which is less accurate than the best macroscopic method Dreyer, Gibson, and Walker[7] have just published figures which completely dispose of his main contention

We ourselves estimated the typhoid agglutinins of 15 inoculated soldiers taken consecutively, who had suffered from pyrexia of at least 102° F and for at least five days, due to lobar pneumonia, acute pleurisy, rheumatic fever, and surgical complaints, in 3 the pyrexia was still present at the time the blood was taken All agglutinated typhoid in titres varying from 1-50 to 1-500

It is possible, though not proved, that the general lowering of "resistance" which occurs in diseases associated with prolonged pyrexia may sometimes temporarily diminish the titre of "inoculation" agglutinins To act however, on the assumption that a positive typhoid agglutination reaction has "the same value" in the inoculated as in the uninoculated might be disastrous for the Army, with all respect to Captain Tidy Clearly, if the serological tests were believed, the "vast majority of febrile affections occurring in those recently inoculated against typhoid would necessarily be diagnosed as typhoid" [7] In our opinion cases of dysentery with pyrexia from the Eastern Mediterranean were wrongly diagnosed as typhoid last summer, because it was not sufficiently realised how high the titre of typhoid "inoculation" agglutinins might be

GROUP I —*Cases Agglutinating Paratyphoid A or Paratyphoid B* ‡

Paratyphoid A series —Thirty six cases agglutinated in titres ranging from 1-25 to 1-250, and typhoid from 1-25 to 1-250 They were first examined on the average seven weeks after the onset of convalescence, 31 were examined on at least one subsequent occasion, the average time between the first and last examinations was four and a half weeks

Paratyphoid B series —Seventy four cases agglutinated in titres ranging from 1-25 to 1-2500 and typhoid from 1-25 to 1-2500 They were first examined on the average seven weeks after the onset of convalescence, 52 were examined on at least one subsequent occasion, the average time between the first and last examinations was five weeks

Comments —Almost all, if not all the cases in this group are examples of recent paratyphoid infection for the following reasons

1 (*a*) Out of 87 who were questioned, 86 stated that they were inoculated against typhoid. (*b*) Only 3 stated that they were inoculated against paratyphoid—1 in August, 1915 and 2 in December 1915 Probably they were mis taken first because paratyphoid vaccine has only been used systematically this year and secondly, because none of the

† The men rarely knew on what date their temperature became normal

‡ Complete tables of these cases and some other additional matter will shortly be published in the Journal of the Royal Army Medical Corps

three agglutinated paratyphoid B, which they probably would have done after a mixed vaccine of paratyphoid A and B, especially as the agglutination titre reached by paratyphoid B is on the average much higher than that for paratyphoid A when tested with the Oxford emulsions After testing the serum reactions of about 600 cases of dysentery and "enteric," we have so far found only three sera agglutinating both paratyphoid A and B, two had been inoculated with paratyphoid vaccine and the third apparently had not (c) Possibly, of course, one or two of the cases may have had paratyphoid fever before the war, and the paratyphoid agglutinins have persisted and so misled us There was, however, no clinical evidence of these attacks, and the error from this cause must be negligible

2 If the typhoid agglutinins were due to typhoid inoculations several months ago, and the paratyphoid agglutinins to a paratyphoid infection a few weeks ago, one would expect the titre of the latter to diminish, as a rule, in the four weeks which elapsed between the two examinations, whereas the titre of the former would show little or no diminution, provided that the typhoid agglutinins were uninfluenced by paratyphoid coagglutinins That this is actually the case is shown in a remarkable manner in Table I

TABLE I —*Cases Agglutinating Paratyphoid and Typhoid, showing the Percentage in which the Titres of Paratyphoid and Typhoid remained Stationary, Rose, or Fell between the First and Last Examinations*

Paratyphoid A first examined average 7 1 weeks after convalescence, last examined 11 5 weeks Paratyphoid B first examined average 6 3 weeks after convalescence, last examined 11 2 weeks

	Paratyphoid				Typhoid			
—	No of cases	Stationary %	Rise %	Fall %	No of cases	Stationary %	Rise %	Fall %
P T A	31	19 4	3·2	77 4	28	82 1	3·7	14 2
P T B	52	11·5	4·0	84 5	50	76·0	6 0	18·0
P T A and B	83	14 5	3·6	81·9	78*	78·2	5 2	16·6

* This figure is reduced from 83 to 78, because 4 cases did not agglutinate typhoid 1–25, and 1 was tested only once for typhoid.

(a) The difference in the behaviour between the typhoid and paratyphoid agglutinins is even greater than shown in the table, because the typhoid titre fell markedly—i e, more than 1 tube in only 1 4 per cent, whereas the paratyphoid titre fell markedly in 48 per cent during approximately the same interval

(b) Though the paratyphoid titre has fallen in the majority of cases and usually to a marked degree, there are a few, as one would expect, in which it remained either stationary or fell at first only In this connexion it is interesting to note that those which remained stationary were first examined 8 2 weeks after convalescence average interval 5 7 weeks, those which fell one tube 7 4 weeks, average interval 4 weeks, those which fell two or more tubes 5 5 weeks after convalescence, average interval 5 4 weeks

It is remarkable that the titre of the paratyphoid "infection" agglutinins when first tested was usually less than that of the typhoid "inoculations" agglutinins and also usually diminished rapidly and often disappeared, while that of the typhoid agglutinins showed no change Thus 13 out of the 31 paratyphoid A cases first examined 7 6 weeks after convalescence failed to agglutinate paratyphoid A 1–25 when examined again on the average 4 weeks later, and 23 out of 52 paratyphoid B cases examined 5 3 weeks after convalescence failed to agglutinate paratyphoid B 1–25, on the average 4 7 weeks later In other words, had the examination been delayed on the average from about 6 to 10 weeks two fifths of the paratyphoid cases would not have been diagnosed by the technique we employed

One would naturally have expected that the paratyphoid agglutinins produced by a recent natural infection of some weeks' duration with presumably large numbers of living bacilli, would have outlasted the typhoid agglutinins produced several months ago by comparatively small doses of dead typhoid bacilli administered on two occasions only The fact that typhoid vaccines are made from strains of bacilli selected partly on account of the capacity to form a large amount of inoculation agglutinins may help to explain this phenomenon Our results, however, confirm the statement of the Medical Research Committee's leaflet that the titre of paratyphoid "infection" agglutinins eventually falls "*below* the persistent base line of typhoid agglutination of inoculated persons" Peruzzi,[12] who recently examined the blood of a number of officers 30 months after they had either suffered from typhoid or had been inoculated against that disease, found that the infection agglutinins were *absent* in 63 per cent, while the inoculation agglutinins were *present* in 75 per cent

(c) The rise in titre in about 5 per cent of paratyphoid and typhoid cases was probably due to experimental error except in two cases paratyphoid B series 11 (intermittent carrier) and 38, which rose from 1–50 to 1–250

3 *Co-agglutination* is in all probability not responsible for any of the paratyphoid titres in Group I, still, its possible occurrence must be considered from three standpoints —

(a) *Paratyphoid A producing co agglutinins for paratyphoid B and vice versa* —There was no evidence of this, in fact, we have only found three cases agglutinating both paratyphoid A and B, and in two of them the agglutination was probably due to a dose of mixed vaccine

(b) *Typhoid producing co-agglutinins for paratyphoid A or B* —There was no evidence of this, in fact, the sera of 25 convalescent enterics with a typhoid titre ranging from 1–250 to 1–5000 all failed to agglutinate paratyphoid A or B 1–25

(c) *Paratyphoid A or paratyphoid B producing co agglutinins for typhoid* —Our figures demonstrated that a recent paratyphoid B infection certainly raised the titre of typhoid inoculation agglutinins, thus the typhoid titre was 250 or more in 51 per cent. of the P T B series, whereas the same titre was reached in only 14 per cent of the P T A series, and 20 per cent of 162 cases which agglutinated neither paratyphoid A nor paratyphoid B (see Group III) Dreyer[8] also found that active paratyphoid infection might produce a rise in inoculation typhoid agglutinins, "though it was usually much less evident in paratyphoid A infections than in paratyphoid B infections"

If the paratyphoid B infection raises the titre of the typhoid inoculation agglutinins one would expect the subsequent fall in 84 per cent of the paratyphoid B titres to be accompanied by a similar fall in typhoid titres In reality the typhoid titres in the paratyphoid A infection fell in 14 per cent, but those in the paratyphoid B infection fell in only 18 per cent between the two tests This remarkable discrepancy can be explained by observations made by Dreyer and Walker,[15] who found that 'If an animal which has been immunised some weeks or a month or two before with a particular micro-organism be inoculated with a non lethal dose of a vaccine prepared from some other micro-organism its agglutination titre for the first micro-organism exhibits a new rapid rise of greater or less extent and pursues a curve similar to the ordinary inoculation curve' In other words, under the stimulus of the paratyphoid B infection the typhoid agglutinins have in most cases repeated the *sudden* rise and *very slow fall* which they underwent after the original typhoid inoculation This increase is "due to a reaction of a general non specific character affecting cells and tissues which are already engaged in the formation of specific agglutinins and causing them to take on the increased activity"[3]

4 We believe a paratyphoid titre as low as 1–25 is probably always diagnostic of paratyphoid infection in convalescents, at any rate provided that paratyphoid vaccine had not been used—first because such titre was never present in the various controls and, secondly because in many of the cases in Group I the titre of 1–25 disappeared without any corresponding change in the typhoid titre

We found the titre of paratyphoid B agglutinins as a rule much higher than that of paratyphoid A, thus only 11 per cent. of the latter cases reached a maximum of 250 but 30 per cent of the former reached from 250 to 1250 including two of 2500 though these last were tested at the very beginning of convalescence If the results were expressed in 'standard agglutinin units' the paratyphoid B titre would be still higher—e g, one batch of emulsion gave with a titre of 250 paratyphoid A 70 units paratyphoid B 93 units We conclude therefore, that a paratyphoid A titre of 1–25 is more significant than a paratyphoid B titre of the same amount Dreyer, as stated before believes a titre of even 1–10 is diagnostic of paratyphoid A

Our figures of "infection" agglutinins confirm those of Dreyer also of Coppinger and Gibson[2] with "inoculation" agglutinins These observers found independently that after inoculation with a mixed paratyphoid vaccine the paratyphoid B titre was much higher than the paratyphoid A titre. Castellani's[1] figures show that after his vaccine the titre of paratyphoid A and B is practically the same. Harvey and Gibson[3] on the other hand found the titre of paratyphoid A higher and more persistent than paratyphoid B, but they inoculated rabbits. The relative position, however, of the paratyphoid A and paratyphoid B titre in a given series of cases will depend not only on the quantity of specific agglutinins and their persistence when formed, but also upon the relative agglutinability or *sensitiveness* of the emulsions used to measure those agglutinins

Paratyphoid carriers—The relation between paratyphoid carriers and paratyphoid agglutinins was shown in two cases The first was that of a chronic paratyphoid B carrier The paratyphoid B titre has remained steady at +1-500 for 12 weeks whereas the typhoid has fallen from + 1-1250 to 500 in the same time The second was that of an intermittent carrier who has shown remarkable variations in titre 5 weeks after convalescence the titre was 1-125, in 17 weeks it had disappeared, but with the reappearance of paratyphoid bacilli in the excreta it again rose to 1-125 **

The Relative Frequency of Paratyphoid A and Paratyphoid B

All the statistics from the Near East whether from cultures or serum tests—the results of the two methods will not necessarily coincide—show that paratyphoid A was much more frequent than paratyphoid B (Bassett Smith,[13] Ledingham and Penfold[14] Willcox[15]). We found the reverse 36 cases paratyphoid A and 74 paratyphoid B The discrepancy may be partly explained by supposing that the paratyphoid B agglutinins on account of their higher original titre persist longer than those of paratyphoid A, though we have no evidence of this There is however, a very simple explanation Willcox, referring to Archibald's figures which give the largest number of typhoid and paratyphoid cases proved by blood cultures from the Near East says that "up to the end of October 1915 paratyphoid B was much more frequent in occurrence than A, but after the end of October paratyphoid A was much more common

We have arranged 107 of our cases in which the date of onset of paratyphoid could be approximately fixed and the results are given in Table II

TABLE II

Date of onset	No of cases	Ratio of P T A to P T B
August and September ...	58	1·0
October	16	1·0
November	18	1·2
December and January ...	15	1·5

When it is remembered that all our cases were diagnosed with exactly the same technique and under the same conditions the results confirm Willcox's statement in a striking manner It appears that paratyphoid B infections though rare are much commoner than paratyphoid A infections in Europe especially in England whereas in India the reverse obtains[11] The change in the incidence of these two diseases among the troops in the Eastern Mediterranean last October is probably due to the fact that a large number of battalions from India were brought there some of which would be infected with paratyphoid A.

GROUP II—*Cases Failing to Agglutinate Typhoid Paratyphoid A or Paratyphoid B in 1-25 at the First Examination*

Twenty eight cases comprised this series The agglutination reaction was tested on the average 7 weeks after the onset of convalescence maximum 12 and 9 weeks minimum 1 and 2 weeks Twenty six had been inoculated against typhoid between May 1914 and December 1915 the average time from inoculation was 10 months 1 refused inoculation and 1 was not questioned, 2 stated that they were also inoculated against paratyphoid Two were diagnosed as paratyphoid and 1 as "paratyphoid A and B"

Comment—The majority of these patients probably never had typhoid, because even if the inoculation agglutinins had disappeared in about 10 months it is unlikely that the typhoid infection agglutinins would have disappeared in about 7 weeks, especially as 8 of the cases were tested 3 weeks or less after the onset of convalescence. Again blood cultures appear to have been made in only 1 case and serological tests in 8 cases Lastly, 12 gave a history of, and were first diagnosed as, dysentery, and 1 as malaria

GROUP III—*Cases Agglutinating Typhoid Only*

It has already been pointed out that a serological diagnosis of typhoid cannot be made in those recently inoculated unless the titre of the typhoid agglutinins is estimated on two occasions at least, if not three or more separated by short intervals Unfortunately it was only possible to do this in 133 out of the 162 cases in this group The results are taken collectively and are summarised, in a few instances however individual cases have been alluded to The results are arranged in three series (*a*) 95 cases examined on three or more occasions (*b*) 38 cases examined on two occasions only, and (*c*) 29 cases examined only once Those of the first two series are given in Table III

TABLE III.—*Cases Agglutinating Typhoid Only showing the Percentage in which the Titre was Stationary, Rose or Fell between the First and Last Examinations*

—	Stationary %	Weeks from convalescence	Weeks between tests	Rise %	Weeks from convalescence	Weeks between tests	Fall %	Weeks from convalescence	Weeks between tests
Series A, 95 cases	57·9	8·9	4·7	9·5	7	4·3	23·2	7	5·8
Series B 38 cases	57·8	5·9	3·8	10·6	7·5	3·5	31·6	7·5	3·5
Series A & B 133 cases ...	57·7	8·1	4·4	9·8	7	4·5	25·5	7·1	4·8
Typhoid in P A & P B table ...	78·2	6·2	4·4	5·2	7	5·2	15·6	8·1	6
P A & P B table 110 cases ...	14·5	8·1	5·9	3·6	7·7	4·5	81·9	6·3	4·5

Comments—1 The titre (Series A and B) on the first examination was 500 to 2500 in 2·3 per cent, 250 in 19·6 per cent 125 in 36·1 per cent., 50 in 27 per cent and 25 in 15 per cent 2. In 64 per cent (Series A and B) the typhoid titre was stationary between the two examinations, which is strong evidence that the majority never had a recent typhoid infection This is corroborated by the fact that the percentage in which the titre was stationary is only a little less than that of the typhoid titres in the *paratyphoid* series where we believe a recent typhoid infection had rarely if ever occurred It forms a marked contrast to the small percentage of stationary paratyphoid titres in the same series where we believe a recent paratyphoid infection had almost always if not invariably, occurred. 3. Thirty four cases, or 25 per cent showed a fall in titre. They were arranged according to the number of weeks the first examination was made after convalescence 46 per cent fell in the first 4 weeks after convalescence, 29 per cent in the second 4 weeks and 25 per cent from 9 to 18 weeks. In other words had the first examination been made sooner a larger proportion of cases would most probably have shown a fall in titre which could be evidence of a recent typhoid infection This fall in titre however is not really strong evidence of a recent typhoid infection, because only 7, i.e 5·3 per cent., fell as much as 2 tubes, whereas in the paratyphoid

TABLE IV—*Typhoid Agglutinins*

—	Titre	Weeks	Titre	Titre	Weeks
1	250	4	125	50	9
2	250	4	125	50	11
3	250	7	125	25	13
4	250	3	125	50	12
5	50	6	25	0	15
6	50	4	25	0	7
	Average ...	4·7		Average ...	11·2

* In the Medical Research Committee pamphlet 1 it is stated, "A normal carrier (typhoid or paratyphoid) will normally show no important change in the titre of his serum on repeated examination on a short interval It is said that a carrier may show an important change in titre perhaps however the word "normally" excludes the chronic carrier

series 48 per cent fell 2 or even more tubes in approximately the same time Six cases (Series A) showed a steady fall in the titre of at least 2 tubes, which, as they had all been inoculated against typhoid more than a year before, is, in our opinion, conclusive evidence of a recent typhoid infection

The seventh (Series B), first examined six weeks after convalescence, showed a titre of 50, which fell to 0 in seven weeks, this also was probably a case of typhoid infection Of the remaining 27 of both series all fell only 1 tube. As the fall was so slight, it is in the majority of cases most probably due to a gradual normal disappearance of inoculation agglutinins, or to technical error, and not to active typhoid infection

4 Thirteen, or 10 per cent, showed a rise in titre, in 3 (Series A) the titre rose steadily viz

No 8 titre 25 (four weeks after convalescence), 125 (5), 250 (7), 50 (9), 50 (10) Inoculated against typhoid October, 1914 The emulsion denominator was 5 6 for the first test and 7 7 for all the rest

No 9 titre 250 (9 weeks after convalescence), 500 (10), 1000 (11), 500 + (13), 500 (15) Inoculated against typhoid October, 1914 The emulsion denominator was 7 7 for all tests

No 10 titre 50 (6 weeks after convalescence), 125 (7), 125 (8), 250 (10), 500 + (14), 500 + (16) Inoculated against typhoid May, 1915 The emulsion denominator was 5 6 for the first test and 7 7 for all the rest

It will be noted that in Nos 8 and 9 the typhoid titres steadily rose and subsequently fell, in No 10 there was a steady rise and no subsequent fall in 16 weeks In our opinion this change in titre, although it was unassociated with any pyrexia, is strong evidence of recent typhoid infection It suggests the possibility that the patients are carriers, at any rate, in case 10 but no typhoid bacilli have been isolated after at least four examinations of the excreta If these cases were typhoid, then the typhoid agglutinins in typhoid convalescents do not "*always* (italics ours) show a definite diminution of titre in the course of a week or two" as one is led to infer from Dreyer's statement[4] Of the other 10, 3 rose 2 tubes, in 1 case (No 11) probably from infection, in 2 (and the remaining 7 rising one tube) probably from technical error or change of emulsion denominator

5 Other remarkable evidence strongly suggests that very few in this group really had typhoid—viz, the typhoid titre reached 250 or more in only 20 per cent of the cases, whereas it reached this limit in 51 per cent of the paratyphoid B series, the rises being due to co agglutination and not typhoid infection One would naturally expect, had typhoid infection really occurred, that the titre would have reached at least 250 in far more than 50 per cent of the cases Dreyer[6] found the titre greater than 1-500 in 7 out of 8 consecutive cases of active typhoid infection, even though the patients had never been inoculated

Series C—Of the 29 cases examined once 3 agglutinated 1-500 6 1-250, and the remainder varying from 1-125 to 1-25

Summary—We have briefly summarised the results though the data are sometimes incomplete In only 11 cases was there a strong probability if not a certainty of recent typhoid infection Even if we assume that as many as half the remaining 27 cases in which the titre fell one tube were also infected, the total reaches 25 cases (11 + 14)—i e, under 10 per cent of the whole 300 examined This forms a marked contrast to the 110 or 37 per cent. of cases agglutinating paratyphoid, two or three of the latter however, may have been infected with typhoid as well The number of typhoid infections would probably have slightly increased if the 29 cases (Series C) had been examined at least twice

The number of typhoid infections would also have been increased if the first examination had been made earlier than at an average of seven weeks after the beginning of convalescence but so would the number of paratyphoid infections Our proportion of 1 typhoid case to not less than about 4 or 5 paratyphoid cases is corroborated by Archibald's figures from blood cultures—19 typhoids to 122 paratyphoids and our own from the excreta of convalescents—2 typhoids to 12 paratyphoids

Last summer the diagnosis of typhoid was often made in the Eastern Mediterranean on insufficient clinical and bacteriological evidence

(*a*) Patients with continued "pyrexia of unknown origin were called "enteric" just as they were called 'influenza" in England or "malaria" in India The clinical diagnosis was especially difficult because fully a third were suffering from acute dysentery There have been cases labelled "convalescent dysentery" from the Eastern Mediterranean at the Tropical School Auxiliary Military Hospital, Liverpool under the care of Professor J W W Stephens and Captain Ll A Morgan, R.A M C, which have developed "pyrexia of unknown origin" lasting days or weeks, but there was no serological or bacteriological evidence of typhoid or paratyphoid infections

(*b*) The bacteriological evidence was insufficient because out of 154 patients of the 162 in this group who were questioned only 8 per cent stated that blood was taken from their arm i e for cultures, an operation likely to be remembered Only 40 per cent had blood taken from their finger or ear, i e, for serum reaction, though a *single* examination is perfectly useless in the diagnosis of typhoid among the inoculated A great improvement has now been made in the bacteriological diagnosis, for in a large series of "enteric" cases not included in this paper, which have recently arrived from the Eastern Mediterranean, practically all of whom contracted the disease this year, 34 per cent gave us a history of blood cultures and 45 per cent of serological tests.

Summary and Conclusions

1 The serum reactions to typhoid, paratyphoid A, and paratyphoid B of 300 consecutive recently convalescent "enterics" from the Eastern Mediterranean have been tested by Dreyer's technique and with emulsions supplied by the Oxford Standard Laboratory, through the agency of the Medical Research Committee

2 After making about 3000 tests of these and other cases we find the emulsions most satisfactory, giving quite clear and definite readings, and the technique so simple that it can easily be mastered by an intelligent attendant. The method is accurate, the margin of error small and eminently suitable for routine work on a large scale It is essential, however, to have the same intensity of artificial illumination by day and night for reading the titres The only practical difficulty—viz, that of obtaining sufficient blood—was overcome by instructing the ward sisters how to fill specially made Wright's capsules

3 Control sera of soldiers inoculated against typhoid but suffering from dysentery or surgical diseases, failed to agglutinate either paratyphoid emulsions but the serum of every convalescent, 12 in all, excreting paratyphoid A or paratyphoid B bacilli agglutinated the corresponding emulsion only in titres ranging from 25 to 250

4 One hundred and ten, or 37 per cent. of the cases tested agglutinated paratyphoid emulsion 36 agglutinated paratyphoid A (titre from 25 to 250) and 74 paratyphoid B (titre from 25 to 2500) They were first tested about 7 weeks after the onset of convalescence As none, with 3 doubtful exceptions, had been inoculated against paratyphoid almost all if not all had a recent paratyphoid infection This is confirmed by the fact that 83 cases were tested at least twice and the paratyphoid titres, presumably from 'infection," fell during 4 weeks in 82 per cent, 48 per cent fell markedly, 43 per cent completely failed to agglutinate at the last test—i e would never have been recognised as paratyphoid had the first test been delayed from about 7 to 11 weeks after the onset of convalescence Occasionally the fall in paratyphoid titre was rapid at first and then slower or ceased altogether The typhoid titre presumably from 'inoculation,' fell in only 17 per cent of cases, only 1 4 per cent fell markedly

5 The remarkable diminution and frequent disappearance of the paratyphoid "infection" agglutinins which usually occurred formed a marked contrast to the stationary typhoid "inoculation" agglutinins This is partly explained by supposing that the typhoid vaccines were made from strains of bacilli specially selected on account of their capacity to form quantities of 'inoculation' agglutinins

6 *Co agglutination*—(*a*) Between paratyphoid A and B or *vice versa* co-agglutination did not occur with the Oxford emulsions, in convalescence at any rate, only 3 sera out of 600 have agglutinated A and B simultaneously, in 2 paratyphoid vaccine had been used. (*b*) Typhoid infection or vaccine produced titres from 250 to 5000 without agglutination of paratyphoid (*b*) Paratyphoid B infection though not paratyphoid A infection, certainly raised the titre of typhoid inoculation agglutinins. It was remarkable, however that the paratyphoid B titre usually fell while the typhoid

persisted, apparently the paratyphoid B infection stimulated the tissues already engaged in the formation of typhoid agglutinins to repeat the sudden rise and gradual fall which followed the typhoid vaccine.

7 The paratyphoid A titre averaged a lower level than that of paratyphoid B after infection and after vaccine, partly perhaps because the paratyphoid A emulsions used to demonstrate the presence of agglutinins were relatively less sensitive. Consequently a low paratyphoid A titre is the more significant, Dreyer, in fact, states that an agglutination of 1–10 paratyphoid A is diagnostic.

8 In a persistent paratyphoid B carrier the paratyphoid titre showed no change in 4 months whereas in an intermittent paratyphoid B carrier the titre varied considerably

9 Our serological tests independently confirm what Archibald found by blood cultures—viz. that in the Eastern Mediterranean paratyphoid B infections were commoner than paratyphoid A until November, after which the reverse obtained This change in incidence was probably due to the introduction of paratyphoid A carriers with the battalions from India.

10 Twenty-eight cases—i.e., 9 3 per cent—failed to agglutinate typhoid, paratyphoid A, or paratyphoid B 1–25 when tested about 7 weeks after the onset of convalescence, all but 2 had been inoculated against typhoid The majority probably had never had typhoid partly because one-third were tested 3 weeks or less after convalescence and blood cultures appear to have been made in only one instance

11 One hundred and sixty two cases agglutinated typhoid alone and were examined on the average 8 weeks after the onset of convalescence. Of 133 examined at least twice 11 showed a marked fall or rise in titre demonstrating that almost all, if not all had a recent typhoid infection But even including doubtful cases, not more than 10 per cent of the 300 showed evidence of recent typhoid infection. This percentage, however would have been increased had the first examination taken place sooner, but so also would the percentage of paratyphoid cases

12. The number of typhoid cases is evidently small because (*a*) a fall in titre occurred in only 25 per cent (5 per cent marked) This agrees with the behaviour of the typhoid "inoculation' agglutinins in the paratyphoid group which fell in 17 per cent (1 per cent marked), and contrasts strongly with that of the paratyphoid 'infection" agglutinins which fell in 82 per cent. (48 per cent. marked) (*b*) The typhoid agglutinins reached a titre of at least 250 in only 20 per cent of cases This is exceedingly small if typhoid infection had usually occurred, for the typhoid 'inoculation' agglutinins reached the same limit in 51 per cent of the paratyphoid B series (though this high level is presumably due to co-agglutination) and in 14 per cent of the paratyphoid A series

13 The diagnosis of typhoid in the Eastern Mediterranean last summer was less reliable than at home because pyrexia of unknown origin is frequent in hot climates, because fully a third of the cases were suffering from acute dysentery, and lastly because in our experience it was only controlled by blood cultures in about 10 per cent Serological controls were carried out in 40 per cent but such are useless and misleading in the 'inoculated' unless repeated at intervals, and there is no evidence that this was done

14 The diagnosis as 'enteric' of cases not suffering from these diseases vitiates treatment and discredits prophylactic vaccination while those who recover are regarded as potential bacillary carriers and prevented from returning to active service for months

15 The prophylactic use of mixed paratyphoid vaccines will undoubtedly increase the difficulty of diagnosing paratyphoid as typhoid vaccine has done in the case of typhoid. The difficulty will be greatest in those mild cases which occur especially in the partly protected where the infecting bacteria cannot be demonstrated Repeated serological tests will be of great assistance in the diagnosis The most suitable method for routine work in war time is Dreyer's with the Oxford emulsions It possesses the additional advantage of being a successful attempt to standardise the agglutination tests and thereby make the results from different laboratories strictly comparable

16 As far as our opportunities have permitted we have confirmed all the statements of the Medical Research Committee's leaflet with one minor exception

(continued at the end of the column)

ACUTE INTESTINAL OBSTRUCTION

BY GEORGE F ALDOUS F R C S EDIN,

SURGEON TO THE SOUTH DEVON AND EAST CORNWALL HOSPITAL, AND CONSULTING SURGEON TO THE TAVISTOCK AND BODMIN HOSPITALS.

THE following notes of cases of acute intestinal obstruction I hope will be of interest They range over a considerable area of time Some of the causes are common some rare, but in dealing with this disease the more uncommon conditions should not be lost sight of, as in Cases 1, 3 4 and 6 The chief factors spelling success are, first early operation, and, secondly, one or more enterotomies to reduce toxæmia.

CASE 1. *Enterospasm*—Female aged 31 There was a history of her being struck on Christmas day Violent abdominal pains followed. I saw her in consultation at 10 P.M on Jan 1st All the symptoms of acute intestinal obstruction were present, rapid pulse, vomiting, and visible peristalsis. She was moved to the hospital in an ambulance, and two hours later I opened the abdomen in the median line 3 feet of collapsed ileum close to the ileo-cæcal valve was found The remainder of the intestine, both large and small, was examined. No band stricture, or other obstruction noticed. There was no peritonitis Appendix and pelvic organs were healthy The case was regarded as an enterospasm and the abdomen closed Belladonna was freely given The patient did not improve The abdomen became more distended On Jan 5th (four days later) I reopened the abdomen and found that the collapsed ileum, which measured 3 feet at the first operation, was now reduced to 12 inches Multiple enterotomies gave relief to several pints of intestinal contents and the abdomen was closed A free action followed a few hours later in response to a turpentine and sulphate of magnesia enema The patient made a rapid recovery and was confined, I am told lately, and is at present in good health

CASE 2. *Adherent ileum after appendicectomy*—Female aged 25 Twelve months ago was operated on for appendicitis She was admitted into hospital for acute intestinal obstruction The old scar was excised and the peritoneal cavity entered at the upper angle A loop of intestine, which proved to be the ileum was found to be adherent to the lower angle, producing an acute kink This was easily separated, the visceral coat of intestine repaired, and dropped back. Good recovery followed, as the case was sent to hospital early before toxæmic symptoms developed

CASE 3 *Appendix strangulating ileum*—Female aged 46 This case I saw in October 1915 The patient was on the operating table at the East Cornwall Hospital, Bodmin and was under the care of Dr Arthur G Salmon, suffering from acute intestinal obstruction She was thin, the abdomen was very distended peristalsis was visible and the vomit was fæcal I opened the abdomen through a central incision Large coils of plum-coloured small intestine at once protruded This was all wrapped in a warm towel and search made A tight band was seen encircling a large portion of the mesentery which, on separation proved to be the appendix. This was removed, the distended gut emptied by enterotomy and the stump of appendix buried in the cæcal wall The intestine rapidly improved in colour and the abdomen was closed. The patient left the hospital in good health three weeks later

The previous history of this case is interesting Twenty six years ago (May 1890) Dr Salmon was called to her and found her in a state of profound collapse No vomiting or signs of hæmorrhage were present After 60 hours the patient recovered In April, 1891 (11 months later), the same symptoms recurred with rapid recovery Two weeks later she complained of cutting pains during micturition and the

(continued from preceding column.)

Bibliography.—1 A. Castellani Trans Soc. Trop Med. and Hygiene 1915 vol. ix., p 25. 2 C J Coppinger and H G Gibson Jour Roy Army Med Corps 1916 vol. xxvi p 501 3 G Dreyer and E. W A. Walker Jour Path and Bacteriol., 1910 vol. xiv p 23. 4 G Dreyer E. W A. Walker and A. G Gibson THE LANCET 1915, vol. i p 321 5. G Dreyer and J A. Torrens THE LANCET 1915, vol. ii p 1370. 6 G Dreyer Proc. Roy Soc Med., 1915. vol. ix. (Med Sect) p 9 7 G Dreyer E W A. Walker and A. G Gibson THE LANCET 1916 vol i. p 705 8. D Harvey and H G Gibson Jour Roy Army Med. Corps 1916, vol. xxv p 525. 9 E. Hort Brit Med Jour 1915 vol. ii., p 892. 10 J C G Ledingham W J Penfold and H M Woodcock Brit Med Jour., 1915 vol. ii p 704. 11 J C G Ledingham and J A. Arkwright: The Carrier Problem in Infectious Diseases 1912. p 157 12. M Pernet: Jour Roy Naval Med Service, 1916 vol ii., p 2 1 13 B Smith Proc. Roy Soc. Med 1915, vol ix (Med. Sec) p 51 14 B L. Tidy: THE LANCET 1916 vol. i., p 2 1 15 A. Walker THE LANCET 1916 vol. i p 17 16. W H Willcox THE LANCET 1916 vol i., p 1 17 Directions for the Use of Standard Agglutinable Cultures Department of Pathology University of Oxford, on behalf of the Medical Research Committee.

right temporal bone of a three months' fœtus was removed per urethram, where it was wedged Subsequently the clavicle, femur, and other fœtal bones were removed The ribs came away without assistance The patient continued to pass fœtal bones occasionally for another 12 months She regained her normal health, but had occasional attacks of sickness Dr Salmon adds, in the notes from which this previous history is compiled, that the attacks of collapse for which he first saw her probably coincided with the bursting of the ectopic gestation sac into the bladder The fœtal bones were encrusted with phosphates, and he considers it a wonderful performance of nature to rectify a perilous condition

I am much indebted to Dr Salmon and Dr R B Anderson for their help and notes in this case

CASE 4 *Appendix nipping ileum*—A child aged 2 This case was thought to be an acute intussusception The child was passing blood and mucus No lump could be felt and pain was chiefly on the *left* side Vomiting was constant. The parietes were incised over the right rectus, and the peritoneal cavity entered through a 2 inch incision in the posterior sheath and peritoneum On passing in two fingers a tight cord was felt between the right iliac fossa and the brim of the pelvis This was the appendix A loop of ileum (about 9 inches) was tightly nipped beneath it The appendix was removed and good recovery followed

CASE 5 *Obturator hernia*—Female aged 72 A feeble old woman admitted into hospital with acute intestinal obstruction The abdominal parietes were so thin that coils of intestine presented a curious appearance No signs of external hernia were found and rectal examination was negative A small incision was made in the left linea semilunaris at the lower third, with a view to explore the sigmoid This was found collapsed The incision was closed. A central sub-umbilical incision was then made, collapsed small gut was seen, and on tracing this down towards the pelvis, it was found adherent to the obturator foramen on the right side Only a small portion of the lumen was nipped This was released and the serous coat of intestine repaired with Lembert's suture The patient made a good recovery The bowels acted in a few hours and an attack of diarrhœa followed

CASE 6 *Gangrenous Meckel*.—A child aged 2½ years This case was seen in consultation with Dr M Aikman The child was vomiting and had had no action of the bowels for three days The abdomen was distended and rigid I regarded it as a case of acute appendicitis The patient was admitted to a nursing home the same day The abdomen was opened vertically over the outer half of the right lower rectus abdominis (Battle's incision) The cæcum and colon were collapsed, an inflamed and partially gangrenous Meckel's diverticulum was found attached to the ileum and passing upwards and inwards towards the umbilicus A loop of dark-coloured ileum lay beneath it, tightly strangulated The diverticulum was dealt with and the child made a good recovery In this case the large intestine was shrunken to the size of a lead pencil and I had serious doubts as to the possibility of it regaining its function

CASE 7 *Ruptured uterus with gangrenous intestine*—Female aged 41 The history of this case is brief The patient was admitted to the Bodmin Hospital in a collapsed condition, having been brought a considerable distance by motor car She was confined 48 hours previously and great difficulty was experienced in delivery Intestine was protruding from the vagina No action or flatus had passed The abdomen was distended Vomiting was urgent I saw her a few hours later and, assisted by Dr Anderson and Dr Salmon, opened the abdomen The peritoneal cavity was full of blood, the uterus was ruptured posteriorly, the rent being 3 inches long Subtotal hysterectomy was performed, leaving both ovaries and the stump covered in the usual way The pelvis was then examined, and 2 feet of small intestine was found in a gangrenous condition, quite separated from its mesentery This was rapidly excised, division extending well into normal gut, and joined up by simple suture The mesentery was laced up, and the parietes united in layers No rise of temperature followed, the bowels acted well in the course of a few days, and the patient left the hospital quite well in three weeks

CASE 8 *Carcinoma of colon and ovarian cyst with twist of pedicle*—Female aged 23 This patient was seen in consultation with Dr R Simpson She had suffered for the last few days from constipation and had some pain in the left iliac fossa This was dull on percussion, the right side being resonant Enemas and aperients failed to produce any relief and she was admitted into a nursing home On opening the abdomen an ovarian cyst with a twisted pedicle occupied the left iliac fossa extending upwards towards the left side This was removed without tapping The cæcum was tightly distended It was necessary to extend the incision upwards nearly to the ensiform cartilage in order to trace the large intestine A malignant growth was found at the hepatic flexure, completely blocking the lumen of gut A mass of glands was present in the mesocolon Relief to obstruction was given by a cæcostomy and the abdomen closed, and a few weeks later ileo-colostomy was performed The patient left the nursing home in six weeks the bowels acting well, and health gradually improving. The ovarian cyst was of semi solid consistence Dr W I Pethybridge reported that the ovarian tumour was an adenocarcinoma, and probably primary, the growth in the colon being secondary

CASE 9 *Hernia, reduction en masse*—Male aged 47 The patient was sent to the South Devon Hospital by Dr H Davis, of Callington, for acute intestinal obstruction The man was very ill, vomiting everything taken by mouth No flatus had passed for some days On examination a small lump, the size of a walnut, was felt just above the internal abdominal ring on the left side No external hernia was found, and examination of the rectum revealed nothing abnormal The small lump referred to felt like, and was thought to be, a gland Incision was made vertically over this, and a small knuckle of gut was found tightly nipped This was dealt with and good recovery followed I consider that the man had had an inguinal hernia which he had reduced *en masse*

CASE 10 *Omental adhesion*—Male aged 47 This patient was a powerful, well built man, sent by Mr T A King of Bude, suffering from acute intestinal obstruction He was vomiting everything taken by the mouth, and there had been no action for five days The abdomen was tightly distended He had been in hospital six years ago and had had three operations, one being a colotomy which was afterwards closed Unfortunately no notes were available There were three scars—one long median extending beyond and obliterating the umbilicus, and one right and left inguinal The central site was chosen, and on opening the peritoneum an enormous bulk of large intestine presented, this was easily turned out into a warm towel A long, rope-like cord of omentum was attached to the upper angle of the incision This was tied off to the extent of 7 inches An enterotomy of the colon evacuated a quart of liquid fæces, and the small incision was closed A similar opening was made in the distended small intestine, with relief to a quantity of gas These two enterotomies permitted the easy return of intestine The appendix was normal The abdomen was then closed, the bowels acted naturally within a few hours, and he left the hospital quite well in three weeks. I do not know what the patient's original condition was for which a colotomy was performed, but the omental adhesion was the cause of his obstruction when he came under my care

In the treatment of acute intestinal obstruction I cannot urge too strongly the importance of early surgical interference If this is objected to by the patient, or by his or her relatives, the danger of delay and lessened chance of a satisfactory result should be clearly pointed out Naunyn (quoted in Keen's Surgery, vol iv, p 645) collected 288 cases of acute intestinal obstruction which showed recovery in 75 per cent when operated on the first or second day but falling to 35 per cent if delayed to the third day I quite admit the occasional difficulty of diagnosis but surely it is safer to open the abdomen when acute symptoms are present than to wait

Plymouth

IMMOBILITY AFTER JOINT INJURY

BY SIR JOHN COLLIE, M D ABERD,
HONORARY PHYSICIAN COUNTY OF LONDON WAR HOSPITAL, EPSOM

MANY men who have had accidents at or in the neighbourhood of a joint draw sick allowances from industrial clubs, insurance companies, and the State long after all inflammation has subsided, and when there is no apparent reason why pain should be complained of. The suspicion of malingering not unnaturally arises in the mind of those who have to pay and a medical opinion is sought where it is assumed there is a *prima facie* case of fraud The vast majority of these cases are, however, not fraudulent, but are the result either of mismanagement by those in charge of the case or of the patient having adopted his own treatment

At one time it was almost the universal practice of the medical profession to keep joints fixed for many weeks after the reduction of a dislocation and to allow splints to remain on fractured limbs until the muscles had wasted and strong fibrous bands had fixed the adjacent joints, this bad practice is still common Large numbers of these cases subsequently apply to bonesetters, and many are cured

It is scarcely fair to blame the public if, not having obtained relief from regular practitioners, it deliberately takes the small risk of having adhesions broken down and resorts to irregular practitioners for this purpose. They occasionally come across unreduced dislocations but since the discovery of X ray photography their number must be few Perhaps more frequently bonesetters replace dislocated semilunar cartilages where regular practitioners have failed

Many believe that the bonesetter lives by fraud and chicanery that every joint he is asked to treat is said to be "out," that he gives a mysterious twist of the limb surreptitiously cracks his fingers in the neighbourhood of the joint and, heigh presto! an "unreduced dislocation" is cured. Now in most cases the patient is cured, but not by the reduction of a dislocation The swift accurate, and definite movements are those necessary to break down the fibrous bands that always form round joints which have become stiff for want of passive movements

Many bonesetters administer an anæsthetic daily for a few days after the initial operation to overcome the muscular resistance. People who go to bonesetters do not mind the risk and the expense but a second anæsthetic is quite unnecessary for carefully regulated exercises although a little painful at first are all that are required to complete the cure I have seen a large number of joints both in civil and military practice some of them temporarily and many permanently disabled because the surgeon in charge has failed to appreciate that immobilisation of a joint is inevitably followed by adhesions. It is not sufficiently recognised that the longer adhesions are allowed to remain the greater the risk is of permanently impaired function This is especially common where a shoulder joint has been dislocated or where a knee joint has been the subject of a mild form of traumatic synovitis

Adhesions sometimes take place at a joint which has been fixed so short a time as three weeks They may bind together the articular surfaces and the folds of the synovial membrane in the joint, or they may be entirely outside the joint The surrounding tendons may become adherent to their sheaths as the result of teno-synovitis

Adhesions form in the shoulder joint in the capsular ligament over the bicipital groove—where an adventitious band is sometimes found in connexion with the sheath of the long head of the biceps—and over the deltoid bursa, at the elbow joint from the tip of the internal condyle of the humerus corresponding to the fan shaped internal lateral ligament, at the knee the bands adhere to the internal semilunar fibro-cartilage and the internal lateral ligament.

When estimating the mobility of the shoulder joint the scapula should always be fixed. After adhesions in the shoulder joint have been broken down the arm must on no account be put in a sling I find a very good method of inducing patients to extend the shoulder joint is to place them face forwards against a closed door with the palms of the hands against the door They are instructed to make both hands gradually creep up by muscular action of the fingers against the support of the door until the hands are well above the head. The gradual slow, and comparatively painless upward gliding of the hands always produces a fascination in reaching a higher point which has generally a very happy result. This movement is much more easily performed than raising the hands apart from the support of the door for the strain on the deltoids is not so severe and the upper extremity is raised partially by the assistance of the muscles of the forearm

The after treatment of accident cases for which the State an insurance company or an employer is responsible is always difficult to carry out Amongst a certain class of employees there is a feeling of resentment against the employer especially if as sometimes happens the injury is the result of want of proper care on the part of the employer —as for instance where a faulty rung of a ladder has been discovered to have been the cause of the accident The patient perhaps not unnaturally thinks that it is his business to see that now the initial suffering is past he shall not be submitted to any further pain or inconvenience of any sort and that if he does not fully recover his master must take the consequences Apart from this short-sighted policy it should not be forgotten that many of these people have already suffered much both physically and mentally as the result of their accident and that the responsibility for the fact that an operation for breaking down adhesions is necessary is not that of the master the patient, or the insurance company, but comes a good deal nearer home than many members of our profession care to admit even to themselves

Attempts are sometimes made to break down adhesions under nitrous oxide gas but with it complete muscular relaxation cannot be obtained, and the results are unsatisfactory I never advise men of the working class who are suffering from adhesions in or round a joint to submit to treatment in the *out*-patient department of a hospital For although the operation itself is comparatively trivial, and it would appear at first sight to be one eminently suited for the out-patient ward, experience shows that subsequent to the operation the daily forced passive movements upon which success or failure depends cannot be secured in this way The only satisfactory treatment for these cases is to obtain admission to hospital, and fortunately only a few days' stay is necessary

The way not to succeed in a case of this sort is to send such a case to the out-patient department of a hospital, to have nitrous oxide gas administered sufficiently deep for a dental extraction, to have the limb bent as far as the opposing muscles will permit and then to instruct the patient to attend as an out-patient at intervals to be massaged by a nurse two or three times a week. The anæsthesia is not sufficient the operation cannot be complete, the patient may or may not attend for the massage, and in any case it will be useless for the patient will assuredly not permit of any passive movements which are in the least painful at the hands of anyone except a surgeon

Mr Romer who has made a special study of this subject, points out that when adhesions have to be broken down an anæsthetic should always be given, not so much for the purpose of avoiding pain as of ensuring the complete relaxation of the muscles, otherwise the muscles which will be involuntarily brought into action may be injured by the force necessary to break down the adhesions He points out that sufficient muscular relaxation cannot be obtained by nitrous oxide gas, and that it should never be relied on The elder Hutton the bonesetter necessarily performed his operations without an anæsthetic, and he overcame the resistance of the muscles by rotating the limb on its own axis for a considerable time. The rationale of this movement seems to be that by throwing the muscles out of their ordinary lines of action they are for the time rendered powerless.

When adhesions give way there is no mistaking the result of forcible movement—the loud crack or the less highly pitched crunch, or it may be merely a tearing sound indicate to some extent to those who have much experience the duration of the adhesions Pain which follows the operation is insignificant and seldom lasts more than an hour The important point is that unless the medical man who undertakes this comparatively simple operation is prepared to carry out the *after treatment* on scientific lines it is infinitely better for his patient and himself not to undertake it Prior to the necessary passive movements of the joint which should be commenced within a few hours of the operation the muscles in the neighbourhood of the joint should be skilfully massaged. It must never be bandaged and to apply a splint is folly If the joint is not manipulated within 24 hours the ruptured adhesions will re-unite.

If the injury done to a joint were merely that fibrous bands formed the damage done could be in most cases comparatively easily repaired by breaking down the adhesions But prolonged immobility to a joint necessarily entails muscular wasting which is the result partly of disuse and partly of nervous reflex action set up by the original injury to the joint To restore the muscular wasting special simple exercises are always most useful The ordinary physical exercises of the gymnasium instructor, so useful in health, are not suited for these cases The anterior middle, and posterior fasciculi of the deltoid for instance, move the humerus in different directions and it is obvious that if a few of the anterior fibres are lacerated the exercises useful for the development of all the muscles of the upper extremity such as the use of dumb-bells &c., cannot be appropriate

Wharton Hood has pointed out that any movement which causes pain will not only be avoided but whenever circumstances call for any approach to it the stronger portions of the muscle will be thrown "on guard" to protect the weaker

parts from going into action Thus the exercise will fail The secret of success in all these cases is to give the muscle very light work at first, for instance, in the case of the upper extremity the gradual lifting of a weight by means of a handle, rope, and pulley is more effective than forcible but indiscriminate movements The weakened portion is coaxed, as it were, to take part in a light movement whilst it would rebel to attempt even to lift a heavy weight. The size of the weight should be gradually increased

The author whose views I have just referred to observes that a few days of such treatment "will generally suffice to bring the specially weakened portions of a muscle into line with the remainder, and to get rid of any pain which the earlier efforts may have caused When this has been accomplished the muscle may be exercised more freely, and as a whole, and the weights employed may be increased All that is necessary in the first instance is so to arrange the exercises as to furnish a movement in which the weakest part of the affected muscle must take its share, and to do this in such a manner that the movement in question is started, and in its course is facilitated by the descent of the weight which the opposite action has drawn up"

Porchester terrace W

EXTRACTION OF BULLET FROM MIDDLE MEDIASTINUM

BY L E BARRINGTON WARD, CH M, F R C S EDIN, F R C S ENG,

HONORARY SURGEON TO THE KING GEORGE HOSPITAL AND (WITH CHARGE OF OUT PATIENTS) TO THE GREAT NORTHERN CENTRAL HOSPITAL AND THE HOSPITAL FOR SICK CHILDREN GREAT ORMOND-STREET

THE following case of bullet lying in close relationship to the pericardium presents several features of interest

Private ——, aged 33, was wounded in France in September, 1915 The bullet entered the left side of the chest in the mid-axillary line There was no wound of exit He was detained in hospital for six weeks and the wound healed uneventfully In February, 1916, he was passed fit for general service again and rejoined his regiment in France He suffered from sharp pains in the chest with palpitation and shortness of breath on marching Accordingly, in April, 1916, he was sent to hospital at E—— A radiogram of the chest was taken and the diagnosis was made of bullet in the pericardium He was sent back to England as unfit for service and on April 28th was admitted to the Great Northern Central Hospital On examination he appeared to be a healthy man with no symptoms while at rest He stated that exercise gave him sharp pains over the præcordia, with attacks of breathlessness There was a healed wound in the mid-axillary line in the seventh inter space The heart and lung sounds were normal A radiogram showed a bullet apparently lying in the pericardium near the left border of the heart just above the diaphragm On screening, movements of the bullet due to cardiac and respiratory excursions were well seen It was thought that the bullet lay in the pericardial cavity, possibly attached to the pericardial wall

An operation was performed for its removal on May 9th Dr W A E Dobbin administered chloroform with the Vernon Harcourt apparatus An incision was made in the mid line of the sternum from the level of the fifth costal cartilage downwards to the sixth costal cartilage and then along the sixth costal cartilage outwards The sixth costal cartilage was removed The internal mammary was ligatured and the triangularis sterni muscle, which was poorly developed, divided The left lung and pleura, which overlay the pericardium as far as the left border of the sternum were pushed aside and the pericardial cavity was opened It was intended, if more room was required, to reflect outwards a flap of the fifth, fourth, and third costal cartilages with the overlying soft parts It was found, however, that the removal of the sixth costal cartilage gave a surprisingly good view, and through this incision it was possible to palpate thoroughly the heart and explore the pericardium The bullet could not be felt It then appeared likely that it was lying on the pleural side of the pericardium The lung and pleura were gently separated off the pericardium and at a depth of about 4 inches from the surface the bullet was found adherent to the pericardium and also to the pleura and lung It lay surrounded by a few beads of pus, with its long axis applied to the pericardium, apex forwards The pleura was adherent to the lung in this situation and this fact undoubtedly prevented any extensive collapse of the lung The bullet was extracted, the pericardium closed with fine catgut, the muscles were brought together, a small rubber tube was inserted superficially, and the skin wound was closed with Michel's clips The anæsthetic was admirably taken throughout and no change in colour and no respiratory or cardiac embarrassment was noted except when the pericardium was pulled forward for suture This traction on the pericardium caused slowing of the respiration

Recovery was uneventful The tube was removed in 3 hours, when some deficient movement of the left side of the chest was noted. The respiration rate rose from 26 before operation to 32 on the second day and fell back to 24 on the fourth day after operation Pulse and temperature were hardly affected On the fifth day the skin clips were removed and the wound was healed On examination 10 days after operation the expansion of both sides of the chest was equal A faint friction rub could be heard over the fifth interspace to the left of the sternum No differences from the normal could be detected on either side of the chest. Examination 14 days after operation showed both heart and lung sounds to be clear

Radiogram showing position of bullet

Interesting points in this case are —1 The narrow escape of the patient from a fatal injury when wounded Presumably the fibrous pericardium was sufficient to stop the career of a spent bullet. 2. The radiographic examination The cardiac movements transmitted to the bullet as well as the respiratory movements showed that the bullet was in intimate relationship to the pericardium It was difficult to say on which side of the pericardium the bullet lay The radiograph rather suggested the cardiac side 3 The comparative freedom with which heart and pericardium could be examined without embarrassment under an inhalation anæsthetic 4 The possibility of separating the pleura off the pericardium without any recognisable collapse of the lung taking place The pleura blew out into the wound with each inspiration

I am indebted to my house surgeon, Miss Miall Smith, for her good assistance and care of the case, and to Dr J Morison for the invaluable aid of the X rays

Harley-street W

"INCREDIBLE MEANNESS"—At the last meeting of the Barnstaple (Devon) rural council a letter was read from a medical man in reference to the reduction of notification fees from 2s 6d to 1s The writer stated that after allowing for the cost of sending "swabs" for bacteriological examination only 4½d remained to the medical attendant for his time and trouble, and he added that if the council refused to pay the postage the writer would not send any more The letter was written as a protest against the incredible meanness" of the Local Government Emergency Legislation Act

CESSATION OF TACHYCARDIA ON THE OUTBREAK OF SPONTANEOUS PERSPIRATION

By SIR THOMAS OLIVER M D GLASG , F R.C P LOND
PROFESSOR OF THE PRINCIPLES AND PRACTICE OF MEDICINE, UNIVERSITY OF DURHAM COLLEGE OF MEDICINE, NEWCASTLE UPON TYNE.

RECENTLY I saw in consultation with Dr S D Metcalfe of Benwell Newcastle-upon Tyne, a man of sedentary employment aged 28 years, the subject of tachycardia, who had rapidly become cyanosed and who was dangerously ill. The patient, a well built man and married, had three days previously when at work, been seized unexpectedly with vomiting and immediately afterwards tachycardia developed. The vomiting kept recurring and was rather a distressing symptom. This was not the first occasion on which the patient had suffered from such a seizure. Eight years ago, just before his marriage he had an attack, three years ago he was similarly held, and since then he has had minor seizures but with the exception of the original attack, to be subsequently mentioned in none of them had he been so severely held as in this last. Until his recovery from this last attack no explanation of the seizures was forthcoming It now appears that at the age of 15 after running a few miles during which he stumbled twice from exhaustion, his heart began to beat violently and the beats were quickened. For two days after running he lay in bed unconscious The patient is extremely abstemious and is only a light smoker There is no rheumatic history, nor is there any abnormal physical condition of the body ascertainable through which the attack could be regarded as having developed reflexly

When I saw patient he was lying in bed, calm and composed. There was no indication of nervous excitement and considering the rate at which the heart was beating there was an absence of respiratory distress The face was pale and although the lips were cyanosed the blueness was less than it had been two to three hours previously The pulse was extremely rapid, about 200 per minute, not all the pulsations reached the wrist On examining the heart the apex beat was felt fully one inch external to the nipple line and slightly higher up than usual. At and internal to the apex beat a loud blowing systolic murmur could be heard but no second sound, while external to the nipple line in addition to the systolic murmur, a faint but normal second sound could be heard The systolic murmur was audible over the lower part of the sternum also over the base of the heart where it was followed by a feeble second sound. Over the precordium generally all that could be heard was an almost constant blowing, systolic murmur The area of cardiac dullness was increased transversely The lungs were normal There were marked epigastric pulsation and an enlarged liver The urine was normal. There was neither œdema nor rise of temperature A moderate amount of sleep and physical quietude had been secured by the hypodermic administration of morphia, strychnine and digitalin. As vomiting still continued an effervescing soda, bismuth bromide and belladonna mixture was ordered and this gave relief.

Dr Metcalfe who had examined the patient shortly before the attack was able to assure me that the heart was at that time normal and that the apex beat was then inside the nipple line Within three days therefore this man's heart had rapidly dilated, the left ventricle had expanded as shown by the situation of the apex beat and the right had dilated as indicated by the epigastric pulsation while the widely distributed systolic murmur was additional evidence of an increasing enfeeblement of the myocardium generally

The patient's condition was sufficient to cause anxiety on account of the recurrent vomiting and the supervention of cyanosis upon pallor Later on during the evening of my visit perspiration broke forth Shortly after this the patient sat up in bed and I said now that he had begun to sweat he knew from past experience he would soon be better His expectations were confirmed but not until another experience of previous attacks had become realised in the advent of pain located over the manubrium sterni and base of the heart followed by a sense of great difficulty of breathing as the beat of the heart slackened and the pulse-rate fell Having this presage of recovery the patient had on the whole a comfortable night.

Next morning the pulse had fallen to 74 epigastric pulsation had disappeared the systolic murmur was inaudible, and the apex beat had slightly receded The rapid decline of the tachycardia and disappearance of the physical signs of cardiac dilatation upon the outbreak of spontaneous perspiration are the main features in the case It is not unusual for tachycardia to suddenly cease This has been known to occur for example, after the emission of a large quantity of urine.

We searched for an exciting cause of the attack of tachycardia in our patient but without success The illness came with a vomiting, and it disappeared with a perspiration, for two days the perspiration continued. The thyroid gland was normal so that the influence of an internal secretion from this gland can be ignored. The view we took at the time was that the attack was one of central origin and due either to loss of vagal control or to increased discharge from the accelerator nerve centres There was nothing to indicate that the attack was consequent upon any primary derangement of cardiac ganglia, for although several of the pulse beats failed to reach the wrist this circumstance did not seem to point to extra auricular systoles so much as to failure of the driving power of the left ventricle The bundle of His when it has undergone fibrosis is said to cause tachycardia, so too does arterio-sclerosis of the cardiac coronary arteries but the rapidity with which the symptoms and physical signs disappeared also the outbreak of spontaneous perspiration, point to functional derangement of the central nervous system I have seen tachycardia cause death through myocardial and general exhaustion In our patient there was never any of the sense of dread or distress which are sometimes observed in angina pectoris

Newcastle-upon-Tyne

Medical Societies

ROYAL SOCIETY OF MEDICINE

SECTION OF SURGERY

Treatment of Convalescent Soldiers by Physical Means

A MEETING of this section was held on July 21st Sir RICKMAN GODLEE, K.C V O , being in the chair

Sir RICKMAN GODLEE announced that Sir Alfred Keogh Director-General, had written expressing his regret that he could not be present, as he had hoped, and stating that General M W Russell was representing him at the meeting Sir Rickman Godlee extended the welcome of the society to the staffs of the medical services of the four colonial contingents, and invited them and any other visitors to take part in the discussion should they so desire.

Major TAFF MCKENZIE, R.A.M C read a paper on the Treatment of Convalescent Soldiers by Physical Means He said the military general hospital was very much like a general post-office in one respect for in the later the material was sorted out into first-class second-class and third-class matter The first-class matter in these hospitals was distributed to various hospitals for operation or other treatment and usually found its way back into the firing line within a month or so of the commencement of the disability It was usual for the second class matter to stay a little longer in a convalescent hospital but most of these patients were back at the front in the course of six or eight weeks But there remained the third class matter which was not brought back by these two processes At the beginning of the war this material accumulated in various depots and became an increasing encumbrance to the military authorities It was to provide for this class of case which could not be brought back in a few days or weeks or within six months that the Command Depot was established. His own experience was obtained at the Heaton Park Depot In the first year of the war so many urgent matters required attention that the Director General was unable to provide for the situation until the Command Depot was established for the reception of the more prolonged cases The convalescent hospital was under the Royal Army Medical Corps and a limit of six months was placed on the time necessary to treat the

cases The prime object of the Command Depôt was to return the patients to active service If that could not be done, the next best thing was to get them fit to serve on lines of communication abroad Failing even that, they aimed at getting the men into some sedentary work which was useful to the Army at home If none of these purposes could be accomplished in the case of any patients, then the object was to remove them from the Army as soon as possible The sources from which the men in the Command Depôts came were various, and included convalescent hospitals and the depôts of various regiments, and the kind of case varied with the source There were a very large number of nerve cases, men suffering from various forms of shock, cases which were tremulous, which stammered, which had either diminished or increased sensitiveness, those who suffered from breathlessness and from rapid and dilated hearts owing to over exertion There were also many cases of supposed rheumatism and of real rheumatism, cases suffering from the after effects of gas (bronchitis and asthma), and patients with debility following the serious dysentery which was prevalent at Gallipoli enteric, and malaria In the depôt to which he was attached there was also a constant stream of wounded, men who had been shot in every conceivable part of the body, and those suffering from contractures stiff joints, and very painful scars There were usually 2000 or 4000 cases in each depôt and the treatment carried out was largely that which came under the heading of physical therapy This included electricity, hydrotherapy, radiant heat, massage, passive exercise, mechano-therapy, and progressive physical training It did not follow that because a case was having massage it should also have passive movement or active exercises If the scar tissue were not properly organised these movements were liable to break it down again, the inflammatory process might be renewed and the last state of such a patient would be worse than the first The electrical equipment consisted of the three forms of current usually supplied by the polystat. The faradic was mostly used in the diagnosis of nerve injury, for the treatment of functional heart trouble, and to stimulate wasted muscles By the employment of the condenser the current was rhythmically interrupted and its intensity varied, and in cases which did not permit of movements being carried out it formed a good substitute for them. Arm and leg baths through which the galvanic current was passed were found useful for weakened limbs for some cases of frost-bite general conditions of impaired circulation and for the softening of scar tissue by ionising with sodium chloride and iodide of potassium The less irritating sinusoidal current was of value in maintaining nutrition of muscles whose nerve supply was defective The electrodes used were copper wire mesh adjusted to fit the thigh leg or other special region, the electrode being covered with felt Naturally when dealing with such large numbers of men, the prescriptions were carried out more or less in classes, and every care was taken to supervise their operation, otherwise the effort was wasted With the help of the Committee on Balneology of the Royal Society of Medicine the ordinary hut had been converted into an ideal hydrotherapy establishment The hot or cold stimulating douche had been useful not only in treatment but also in diagnosis of the real nature of cases of supposed rheumatism The serious cases of rheumatism were treated in the sub-thermal tub bath the 20 minutes' immersion in this at a temperature of 94° F being followed by general massage The large pool bath, capable of immersing up to their necks 12 men at a time, was kept at a temperature of 94° The stay was one hour on each occasion Cases of shock and disordered heart were given this bath as a routine measure For patients with painful scars or frost-bitten feet a whirl pool bath, in which the water was kept violently agitated was given at a temperature of 110° For painful limbs the urging of compressed air into the stream provided a comforting effervescent envelope Twenty minutes of this produced a flushing with blood the circulation remained enhanced for hours, and the patients experienced a definite sense of relief It also constituted an excellent preparatory course for massage and manipulation When it was not desirable for the scar to be softened dry heat was applied by means of radiant-light baths The Almeric Paget Massage Corps had supplied trained masseuses and each operator could treat 20 cases daily Recently the massage staff had been strengthened by the addition of the first graduates from St. Dunstan's who had been blinded in action Only those who had been carefully trained should be allowed to carry out this important work As massage progressed it was supplemented by passive manipulation The necessary re education of affected muscles and joints was, to a large extent accomplished by arranging tasks of progressive difficulty At his depôt specially designed weight-and pulley machines were in use for this purpose. Later free gymnastics threw the patient more on his own resources Men at this stage were joined by those suffering from shell shock, those able to do only very light exercises, and debilitated convalescents from enteric or dysentery These progressed together to the stage, if possible of full physical training Not more than 30 per cent of the cases of disordered heart's action could be brought back to class A, as arduous work brought about a relapse in most of them. And the bronchitis which had been started by exposure to gas was frequently reawakened by a forced effort to run and jump The orthopædic, the puzzling nerve conditions and other obscure cases could now be referred to the established special hospitals The results obtained in the Command Depôts fully justified their establishment At Heaton Park, half the patients had been rendered again fit for active service and had rejoined their units in the fighting line, 12 per cent had been sent to the lines of communication abroad, 12 per cent. to useful sedentary work at home while the remaining 28 per cent had been discharged as "permanently unfit" The eight Command Depots had since their establishment, returned a full Army division to the fighting line The average time these men were under treatment had been less than three months, and many of the cases which could not be restored to category "A" yet had their opportunities for a useful career in civil life greatly increased by the treatment Major McKenzie finally expressed his indebtedness for help rendered to him by his assistants

Lieutenant-Colonel R J MORRIS (of the Command Depôt Ripon and of Harrogate) pointed out that Professor Ling more than a century ago coördinated and elaborated physical exercises as a definite treatment of suitable conditions These remedial exercises were divisible into active passive, and duplicated In the last of these the work was partially done by the patient, another person providing the resistance. In his experience at Ripon the physical means had proved to be the most efficacious Since November, 1915 over 76 per cent of the men in his depôt had been returned to service The physical means used there were massage remedial gymnastics without apparatus (conducted by experienced masseurs and masseuses) exercises with apparatus (such as fixed bicycle exercises rowing machines grip dumb-bells, graduated weights) and stimulation of nerves and muscles by galvanic and faradic currents rhythmically interrupted and reversed on the Bergonié system This latter was particularly useful on account of the trophic effect of impulses passing through the motor nerves. When the patients were able to endure more strenuous exercises members of the Army gymnastic staff from Aldershot took them in hand, under the supervision of a commissioned officer in that service Owing to the mental condition of the patients due to their experiences the work called for much patience Many cases were sent much too late He considered that Command Depôts were excellent institutions, and even better results would be obtained by them when they were more generally known among the authorities who were responsible for sending the cases

Dr W BEZLY THORNE recommended mineralised baths for irritable heart and rheumatism He had had cases of trench rheumatism scarcely able to move after treatment by radiant heat massage, and the internal administration of salicylates who yet were placed entirely on their feet by means of mineralised baths and exercises especially if instead of drying the patient after taking the bath he were allowed to dry gradually in his blanket He gave some instances of successful results thus obtained In cases of irritable heart and muscular tremors care should be taken to avoid long immersions

Dr R FORTESCUE FOX thought the reports of the work by Colonel Morris and Major McKenzie most opportune and the whirlpool baths were a new feature so that nothing very dogmatic could yet be said about them, but there was every reason to consider that at high temperatures and for long periods they materially assisted the moving of

immobilised limbs He emphasised the importance of actively insisting on mensuration in these cases periodically from the commencement as it would greatly aid a satisfactory solution of this difficult question The Balneological Committee of the Society considered it very advisable to have, in all places where physical means were employed for wounded soldiers a uniform system of record, so that the opportunities for study and the advance of medical knowledge furnished by the war should not be neglected

Colonel RODD (Canadian Hospital, Ramsgate) said that at his depot at Ramsgate practically the same classes of cases were seen as Major McKenzie had described, though mostly at a rather earlier stage As in all other departments of medicine, the important matter was the diagnosis and at Ramsgate a special medical board paid particular attention to this In six weeks quite a considerable number of myopathic and neurasthenic cases were found to have tertiary syphilis and the recognition of this and the immediate application of appropriate treatment soon resulted in those men being back in the firing line The apparatus used at the depot had been constructed very cheaply, and was quite efficient for the purpose. He described the method of graduation towards fitness which was carried out, ending with instructors who took the men on route marches and others who had charge of them on the playgrounds the men being required to spend two hours per day at play of some kind They could not work at the light duties allotted to them more than four hours per diem and they must not work less than two hours. This limitation was necessary, as some of the more eager were willing to put in eight hours daily A series of periodic checks by medical officers were carried out to ensure that patients while not being over taxed were making the best possible progress towards recovery

Dr E P CUMBERBATCH thought the subject of the treatment of injuries and wounds inflicted in war had received only small attention in Major McKenzie's address for he made no mention of treatment by those most important electrical methods diathermy and the high frequency current He wished briefly to refer to what Major McKenzie spoke of as third-class material'—i.e cases of paralysis of muscles and nerves which would be left after the war had concluded These could be appropriately called fourth class material In the electrical department at St Bartholomew's Hospital he was seeing cases which had been discharged from the Army and were attending for further treatment of paralyses due to nerve injuries received earlier in the war Cases which had had injuries to nerve trunks would even under the best treatment require attention for 18 months or longer before the return of some degree of power and he considered that the best treatment of such cases was by baths supplied with the rhythmically varying sinusoidal current In his department at the hospital a series of such baths had been in operation for nine years and the results in the treatment of cases of paralysis following nerve injuries and diseases of nerves were uniformly good

Major W J TURRELL (Oxford) said it had been most interesting to him to hear Major McKenzie's paper as it treated the subject from the general standpoint of physical therapy which included many subsections that often were not correlated The present contribution scarcely exhausted the possibilities of modern electro-therapy A most important method of treatment was by diathermy When a continuous current was interrupted muscular contractions ensued, but when their frequency exceeded 500 per second no visible contraction occurred and the patient was not conscious of any sensation From the ordinary high frequency current benefit had been derived for a great many years The whirlpool bath and various forms of hot bath affected the surface of the body or limb only whereas in diathermy the current proceeded direct through the tissues intervening between the two electrodes and the beneficial current could be brought to bear on any part of the system That was surely a great advance and it had been very encouraging for frostbite and for the relief of acute pain It was perfectly safe to use and it suitably warmed up tissues as a preliminary to massage He quoted figures from his electrical department at Radcliffe Infirmary Oxford and proceeded to point out the advantages in certain cases of the static machine the violent contractions so produced constituting an efficient auto-massage of the muscles, it also cleared up joint effusions and phlebitis and liberated fibrous adhesions The Bergonié system was also useful for the same kind of case These further developments of electrical methods were well worthy of consideration in the treatment of wounded soldiers

Dr W GORDON (Exeter) said the Command Depôts had been long hoped for There were a deplorable number of cases which had been transferred from one place to another until the stage at which most good could have been accomplished had passed He had great faith in treatment of some forms of injury by means of hot sand, some cases derived more benefit from that than from the application of radiant light or heat With regard to the use of mineralised water for remedial baths he was told at a large establishment in the north of Paris that it was of no consequence whether the water was sulphurated or not He agreed as to the benefits of employing a proper periodic system of mensuration It assisted in accurate diagnosis, ensured that the best treatment was being applied at each stage, and enabled one to confidently apply the right method to each class of case owing to the results already obtained in similar ones He did not favour too great an economy in the setting up of the necessary apparatus

Dr R ACKERLEY (Llandrindod Wells) said he had been treating cases of injury and nervous disease by physical means for more than 20 years and in his view the great object to aim at was to overcome defects of circulation by producing active congestion in the affected part If the patient was to be spared pain one must begin with passive movements, active movements should not be the first stage The presence of pain was sometimes the only obstacle to movement, and this pain must be removed in the best way Some cases were successfully treated up to the point of taking short walks, and he suggested that such cases should be sent to places where they could have Swedish exercises and then be trained to march with their full pack.

Major MCKENZIE briefly replied He said that they had not facilities in the Command Depôts for mineralising the baths, reliance was placed on the temperature The benefits obtainable from the high frequency current were still so much a matter of dispute that it was questionable whether it was justifiable to instal an expensive apparatus for that form The Bergonié system was in full operation at Ripon under Lieutenant-Colonel Morris

---

SECTION OF DERMATOLOGY

Exhibition of Cases

A MEETING of this section was held on July 20th Dr J H STOWERS the President being in the chair when the following cases were shown —

Dr E G GRAHAM LITTLE 1. Xanthoma Tuberosum Lesions commenced on the right elbow two years ago, since when they have appeared on the left elbow knees and in the sacral region. The urine was natural, nothing else abnormal was discovered and no other member of the family was affected. 2. Acne Urticata of Kaposi The lesions appeared as diminutive papules resembling millet seeds in the skin. The itching was intense which made the patient scratch and pick the seed like bodies out. Excoriations and bullæ resulted. When certain lesions had healed others reappeared in the same situation The extremities and not the face were involved.—Most of the members thought the case was either one of lichen planus with bullous lesions or dermatitis herpetiformis —3 Urticaria Pigmentosa in a male aged 34 The patient had had the condition for 17 years

The PRESIDENT Lupus Vulgaris in a female aged 19 The initial lesion was a small ulcer in the mouth which first appeared in 1912 Since then lupus nodules had appeared on the skin around the mouth other ulcers in the mouth, and tuberculous adenitis in the neck had also supervened The right cheek was now much swollen owing to the presence of a dense infiltrated mass of tuberculous tissue. Although most of the recognised forms of treatment, including X rays and Finsen light had been frequently applied, the patient's present condition had not materially improved

Dr G PERNET Dermatitis Herpetiformis in a small boy aged 5 The patient had had several recurrences since the disease first started two years ago The trunk, front and back was involved but there was no pruritus

D W KNOWSLEY SIFLEY 1 Urticaria Pigmentosa in a man aged 19 The duration was only two months and

the patient did not complain of itching 2. Nævus with Ulceration The patient was a man, aged about 20, with a congenital nævus and partial gigantism of the region of the right knee-joint In connexion with the nævus were patches of ulceration and pigmentation.—Dr F PARKES WEBER considered the case to be one of multiple pigmentary sarcoma of Kaposi ——3 Case for diagnosis Patient had had for 12 years on hands, knees, and ankles lesions closely resembling lichen planus There were other lesions which were raised, hard, and not unlike warts —Dr H G ADAMSON pointed out that similar cases had been described in America under the name of lichen obtusus corneus

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND

Mental Disabilities for War Service

THE seventy fifth annual meeting of this Association was held at the rooms of the Medical Society, Chandos street, London, W, on July 27th, Lieutenant-Colonel DAVID G THOMSON, the President, being in the chair

Sir GEORGE SAVAGE read a paper entitled, "Mental Disabilities for War Service" He said that though he did not wish in any way to protect shirkers, he wanted to avoid sending into the Army men who were almost certain to break down under training, or when they arrived at the front He had met many doctors who acted on the idea of giving the men a chance. He granted that sometimes a complete change in mode of life might convert a hypochondriac into a useful worker, but in taking a risk one must see on whom the risk fell He saw at one hospital numbers of men who ought never to have been accepted, men who involved much trouble and anxiety, as well as cost to the nation He had been consulted by many former patients and their relatives as to their fitness for military service When men had had at least one attack of insanity hereditary predisposition must influence judgment of the case. It was his practice to oppose the enlistment for active service of any young man with a direct insane inheritance who had had one marked attack of mental disorder within a few years of this date, if such disorder had needed detention Some of these men were quite suitable for home or munition work. In these cases the previous breakdown was usually unknown to the man's employers or associates, who therefore dubbed him a shirker or a coward. He had seen several people who were becoming unstable because they had been made keenly to feel the mistrust of other people, in some it seemed a lesser danger to allow them to enlist on account of the fear, otherwise, of their developing delusions In some the struggle to decide as to what was their duty had led to various forms of functional mental disorder One case formerly seen for adolescent mental weakness, with inability to concentrate in training for a profession, experienced a return of the old symptoms when the question of enlistment arose There had also been a recurrence of symptoms of mental disorder in so-called shock cases and his opinion was that none of these cases should be allowed to return to duty under six months A class of case which he usually allowed to run the risk of enlisting was that in which the young man had shown, earlier in life a great weakness for lying and pilfering, for which no treatment seemed to do good It was possible such men might make good fighters It was interesting to recognise a form of functional epilepsy which might follow shock or injury He had seen men who, as the result of psychic strain or shock lost consciousness for short periods, and though when removed from the strain they recovered, yet they relapsed when sent back to duty He was confirmed in his opposition to the enlistment of inveterate somnambulists His experience had included some peculiar cases of obsession One case was that of a manufacturer who since a railway accident in which he happened to be had never travelled in a train and had a dread of doing so His mother was in an asylum, and the speaker opposed his enlistment A large and important class was the syphilitic including the general paralytic, the ataxic, and some para syphilitic cases Very many cases of early general paralysis had occurred in the Army and the anxious life was well calculated to start the more active symptoms No man with a clear history of nerve degenerative symptoms related to syphilis should be allowed to enter the Army, but in some of the cases the symptoms were recent, and these after suitable treatment might be allowed to enter the service

Dr PERCY SMITH said that he had met with a number of cases similar to those spoken of by Sir George Savage. Patients with whom he had come into contact perhaps years before, had come recently to learn the right course for them to follow In some worry about the war and the new requirements had brought a return of their former symptoms, and in most of them he did not hesitate to say the men ought to be exempted Medical officers of the Army who did not know the history of the man, and might not have had any special knowledge of mental disorder, did not recognise that men who looked physically fit might yet be very unfit for the Army, because they would soon break down under its ritual Certainly no case of epilepsy ought to be allowed to enter the Army Some had got in and had been made much worse He detailed several cases in his own experience One man, aged 45 who had always been neurotic joined the Anti Aircraft Company and was put on to search light duty, with the result that he had acute insomnia, great depression, and a suicidal tendency A young man, aged 23 whose father was insane was given a commission and only a week afterwards he broke down and attempted suicide, Yet he had been refused permission to declare sick His depression was followed by acute delirium. Some cases had suffered severe strain by the feeling that they were not doing their share, yet they were mainly manifestly unfit.

Dr G E SHUTTLEWORTH said that during the course of the war he had seen some men who were originally feeble-minded boys, and were now brought to him with the view of being certified as unfit for military service He did not so certify them straight away on that mere fact because in the South African War some reputedly feeble minded boys made, when they grew up, very good soldiers He was acquainted with the figures for the special schools in London and Birmingham, and in 1915 it was reported that 70 had joined from the London schools and 100 from Birmingham There was something to be said in favour of institutional children, because they had had a good deal of drill and were prompt in carrying out commands, moreover the Army discipline was likely to do much to keep them straight, if they had sufficient nerve force to stand the incidental shocks and strains Careful judgment was required in regard to the anxious patients in better social positions He had had one or two cases of moral imbecility These were interesting, but very difficult to group One boy developed, at puberty, a great leaning to lying and stealing, though he had been very straightly brought up He enlisted, and in Flanders was constantly in trouble. Dr Shuttleworth said that he wrote to the officer giving a history of the boy, and the result was that he was discharged He had had his measure of punishments but there was no benefit.

Dr SEYMOUR TUKE said it had probably fallen to the lot of most of the members to be called upon to certify as to the fitness or otherwise from the mental point of view of men to join the Army He recently had had much trouble with a family which had an extraordinary history on the mental side and as the member of it who came to him about an exemption certificate had suffered much from insomnia and quite lost himself when he was worried he did not hesitate to certify him as unfit for the Army, though he was able to follow a quiet occupation for his living Those who had a pronounced neurotic history should be treated with suspicion One such man was in the South African War and on his return he developed such a ready speech that he was put on to recruiting During this work he became increasingly excited and was now the subject of subacute mania There was an old history of tubercle, otherwise he was a strong man

The PRESIDENT considered the subject an interesting and difficult one and one on which it was not easy to lay down definite principles Those in charge of war hospitals saw the results of admitting persons to the Army who had suffered mentally or who at least were potential lunatics Yet when asylums had to be vacated in order to make room for war cases there was difficulty in finding room for all the insane patients, and where there was any doubt the patients were set at liberty Some of these joined the Army, and a number had written asking how their old friends in the asylum were now

Reviews and Notices of Books.

he Diseases of Women

By Sir JOHN BLAND-SUTTON F R.C S Eng LL.D Surgeon to the Middlesex Hospital, and ARTHUR E. GILES M D, B Sc Lond F R C S Edin Senior Surgeon to the Chelsea Hospital for Women, and Gynæcologist to the Tottenham Hospital. Seventh edition. With 150 illustrations London William Heinemann. 1916 Pp 571. Price 15s net

In the seventh edition of this manual the text has been thoroughly revised and the subject matter rearranged The authors have departed from the anatomical system of classifying diseases and have adopted a pathological system as they point out in dealing with malformations, displacements and infections which are liable to affect several portions or the whole of the pelvic organs, it is evident that the anatomical classification must lead to confusion, whereas the pathological classification enables the student to obtain a much clearer view of the sequence of the lesions involved The result of this change is to give the book many new features and undoubtedly to increase its value The general size and form of the book have also been altered for the better The diagnosis of the various pelvic affections their treatment, both medicinal and operative and their prognosis, are all considered in separate sections, this saves a good deal of repetition and should prove useful to the student The statistics given of the results of abdominal operations on the female pelvic organs at the Chelsea Hospital for Women are very interesting, comprising as they do 3153 cases with 71 deaths, or an average mortality of only 2·03 per cent

The section on ectopic gestation is also most interesting We notice however that the authors still consider that the blood in a tubal mole lies between the chorion and the amnion rather than in the chorio-decidual space and in their series the frequency of cases of tubal moles to tubal rupture is in the proportion of 1 to 4 a figure which differs very markedly from that given by most authorities In the section on fibroids often no mention is made of the important work of Briggs and Hendry which seems to show that it is extremely doubtful if there is any causal relationship at all between this condition and severe uterine hæmorrhage The only treatment suggested is hysterectomy and the good results which have followed the intra uterine application of radium are entirely ignored The description given of the extended abdominal hysterectomy generally known as Wertheim's operation is not full enough and would be of little assistance to anyone practising this operation for the first time. We are told that the operative mortality is very high and that no reliable returns concerning the remote results are at present available. But the authors can hardly be unacquainted with the very full and careful results published by Wertheim himself, and we must therefore conclude that they consider these statistics unreliable We doubt however if this opinion is held by other gynæcologists who have studied these important results The practice of introducing two fingers into the rectum in performing the operation of perineorrhaphy illustrated in Figs 135 and 138 is not only quite unnecessary but a most septic and undesirable procedure.

We have called attention to some minor blemishes in what is in general a very useful book for the student and practitioner and one possessing marked originality The illustrations are good and well reproduced

American Sewerage Practice

By LEONARD METCALF and HARRISON P HEDDY London and New York McGraw Hill Book Company Vol I pp 747, Vol II pp 564 Vol III pp 851. Price 25s each

THE authors have divided their subject into three sections as may be gathered from the titles of the volumes Vol I Design of Sewers Vol II Construction of Sewers and Vol III Disposal of Sewage As the general title implies the ground covered deals with American practice in this branch of engineering but as a matter of fact the authors include concise references to the practices of other countries notably Italy and France and Germany The book possesses therefore, a more than local value, and it presents a very authoritative statement on the technique of sewage The broad generalities of the problem are well brought out and the volumes make a comprehensive contribution to our knowledge Apart from a historical introduction, Vols. I. and II. are concerned in a full description of the engineering aspects of the question. The first chapter in Vol I is very interesting reading, and amounts to a historic account of the growth of sewerage schemes in which the authors draw attention to the lessons taught by early sewerage works In this reference they give an account of the development of the water carriage system at present in use in the metropolis engineered by Sir Joseph Bazalgette in 1855 soon after the cholera epidemics Paris also it is interesting to recall inaugurated a sewerage system after a severe cholera epidemic in 1832. Many advances have since been made in the ultimate treatment and disposal of sewage and this is the subject of Vol III Here we find the chemical and biological methods of purification adequately described, and we know of no more thorough survey of the subject in the light of recent developments These three volumes will be a very valuable source of reference to engineers, chemists, and all students anxious to be familiar with the world's methods of engineering treating, and purifying sewage

LIBRARY TABLE

The Essentials of Histology (Descriptive and Practical) for the Use of Students By Sir EDWARD A. SCHÄFER, M.D, Sc.D, LL D F R S, Professor of Physiology in the University of Edinburgh. Tenth edition London Longmans, Green, and Co 1916 Pp 563 Price 10s 6d net —The tenth has followed the ninth edition of this useful manual within little more than two years in spite of the increasing dearth of medical students The text has been revised without any notable alterations and many illustrations have been added, the majority being photographs of microscopic preparations The endocrine glands as we should expect from the author, have been specially generously treated We repeat again here the complaint that not all the sections have a note of the scale of magnification. The addition of this to each illustration and of the method of staining adopted would materially add to the value of the book without increasing its size The present-day student is fortunate to possess such a manual as this, complete in essentials and attractive in form

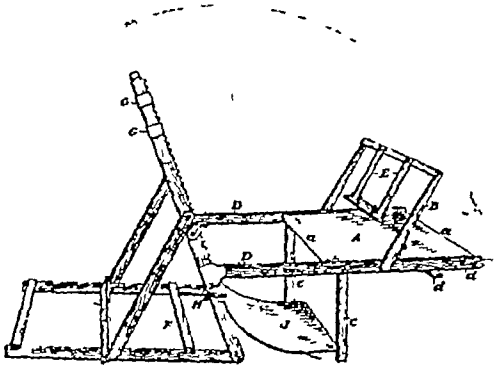
Measures for Avoidance and Extermination of Flies Mosquitoes Lice and other Vermin By H MAXWELL-LEFROY M A F Z S Professor of Entomology Imperial College of Science and Technology, late Imperial Entomologist to the Government of India Calcutta and Simla Thacker Spink, and Co, London W Thacker and Co 1916 Pp 17 Price 1s net.—A second edition of Professor Lefroy's useful pamphlet is welcome It contains simple instructions for avoiding the attack of disease carrying insects and for their extermination. The pamphlet was written in response to inquiries from doctors nurses and others as to how to protect themselves and those under their charge The first edition was circulated privately last summer and enjoyed great popularity The present edition has been brought up to date with the help of the entomologists who have been working at the front and of investigations carried on during the winter at the Imperial College. Matter specially applicable to India has been added The simple directions and modest price bring the pamphlet within the reach of all.

The Maintenance of Health in the Tropics By W J SIMPSON C M G M D Aberd. F R C P Lond Professor of Hygiene and Public Health in the University of London Second edition London John Bale Sons and Danielsson Limited 1916 Pp 174 Price 3s 6d net—This little handbook on the maintenance of health in the tropics was written more than ten years ago at the request of the Committee of the London School of Tropical Medicine and describes in a simple and popular manner the measures of personal hygiene desirable for visitors or residents in the tropics That Professor Simpson has gained his object is evidenced by the call for a second edition The book has been brought up to date and the chapter on malaria revised by Colonel Alcock. No one should live in hot countries without taking to heart the lessons inculcated in this little book.

New Inventions.

AN IMPROVED BED-REST

THIS improved form of bed rest, combined with table and book rest, which has already proved a great boon to wounded soldiers, has been brought to our notice by Mr H W Husbands, M R C S Eng, L R C P Lond As will be seen from the illustration, the apparatus is of the folding type, and is very light to handle, weighing 8 or 9 lb The book rest *E* can be folded up and locked down on catch *d* when a table

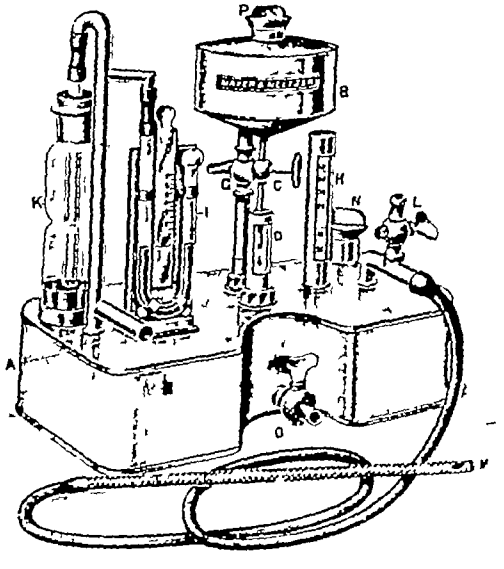


only is required, and a detached wooden table can be substituted for the canvas roller table if necessary The whole of the table and book rest part of the apparatus can be folded out of the way when a bed rest only is required The advantages claimed for this bed rest are Firstly, there is no objectionable bottom crossbar at the lower end of the back, the only crossbar *F* being kept well behind, the patient being supported by the canvas back and cross webbing Secondly, the extension of the canvas back *J* under the patient makes a comfortable support for his back, should the patient be unable to raise himself to enable this extension piece to be passed under him, it can be turned back and buttoned securely out of the way Thirdly the canvas of the back and of the table can be easily removed for washing

The apparatus can be obtained from Mr R Brooks King, Widecombe Taunton the price for the bed rest alone being 9*s*, bed rest and table, 13*s* 6*d*, and bed rest, table, and book rest, 15*s* 6*d*

A NEW APPARATUS FOR THE INTRATRACHEAL INSUFFLATION OF ETHER

IT has been frequently urged that the outfit required for this valuable method of anæsthesia is too cumbersome and unnecessarily expensive, and it has long been my feeling that both these objections ought to be overcome The apparatus described here is a further attempt (*vide* THE LANCET, July 11th, 1914) to meet this criticism, the design was roughly sketched and placed before Messrs Mayer and Meltzer in 1914 but for various reasons execution was deferred until last year and the finished model was shown before the Section of Anæsthetics of the Royal Society of Medicine on April 14th last The idea underlying the apparatus is that ether drips from a container (B) into a central chamber through which passes the air current (A) from the motor or foot bellows, and is there vapourised partly by this means and partly by the heat imparted by an encircling hot-water jacket The tap C regulates the flow of ether, which can be delivered in drops or in a continuous stream The tube C connecting the ether container and the vapourising chamber equalises the pressure on the upper and lower surfaces of the ether, and regular dropping is ensured During anæsthesia the tap of the equalising tube must be kept open but if the container needs refilling during an administration this tap must be first closed before the bung of filling funnel (P) is removed, and kept closed until P has been replaced At the end of anæsthesia the container can be emptied by means of a tap (not shown) K is the safety valve I the manometer, and L the tap on the exit tube for reducing pressure The hot-water jacket is filled at N, and emptied by opening O The thermometer, H, should register 110° to 120° F, according to the temperature of the room and the nature of the operation A Y piece provided with a tap is fixed in the tubing from the motor for attachment to an oxygen cylinder



The hot-water jacket stands in a non conducting cover The apparatus is simple and compact, it weighs 5½ lb and measures 8½ × 4½ × 12 inches The arrangement of the motor and foot bellows is practically the same as that previously described (*vide supra*)

Messrs Mayer and Meltzer, Great Portland street, W have made the apparatus with their usual care and skill

FRANCIS E SHILLAY M D Cantab

Queen Anne-street W

SPHAGNUM MOSS DRESSINGS IN IRELAND—A Dublin correspondent writes—'When the Irish War Hospitals Supply Depôt started its work in November, 1915, at 40, Merrion square Dublin, the entire control of sphagnum moss was handed over to the Royal College of Science Detachment of the St John Ambulance Brigade, which has since organised 25 sub-depôts throughout Ireland with the help of advice from Colonel Cathcart. Some difficulty was at first experienced in getting the proper moss, but after sending correct samples to collectors an excellent supply was obtained, the quality of that coming from Galway, Mayo, and the King's County being particularly good A committee of the Royal College of Science Women's Division manages the depôt, for which excellent work rooms have been granted by the Department of Agriculture During the last seven months sphagnum dressings have been turned out as follows Simple dressings, 58 957, dysentery pads, 325, elbow and garden cushions, 1435, the latter being made from the inferior samples of moss Eighty different hospitals have been supplied in England, Ireland, France, Belgium Egypt, and Greece and the requests for dressings are now so numerous that it has been found difficult to keep up with the demand A special effort made during the past six weeks has resulted in an output of over 20 000 dressings in June and over 16 000 for the first half of July The War Office has requisitioned 5000 sublimated dressings each month, and this branch of the work is carried out at the premises of Messrs Fannin in Grafton street The history of sphagnum moss as a dressing goes back to considerable antiquity The following incident is recorded in Joyce's 'Child's History of Ireland' In the year 1014, when marching home after the battle of Clontarf, the Dalcassians were attacked by an old enemy, M'Gilla Patrick, a prince of Ossory Their chief gave orders to place the wounded in safety in the rear, but they insisted on taking part in the fight Let stakes from the neighbouring wood be fixed in the ground,' said they and let us be tied to them for support with swords in our hands having our wounds bound up with moss and let two unwounded men stand by each of us on the right and on the left Thus will we fight, and our companions will fight better for seeing us' It was done so and when the Ossorians saw this they were struck with fear and pity, and refused point blank to fight with such resolute and desperate men"

PARKE, DAVIS & Co.'s PAGE.

A CASE OF ARTHRITIS DEFORMANS TWO YEARS AFTER TREATMENT WITH RHEUMATISM PHYLACOGEN

Mrs D, 43 years Duration of disease, 15 years There is no family history of rheumatism

The disease began with a tender swelling in one heel, intensely painful and with much redness, shortly after the birth of her second and last child. At intervals of from two to three weeks similar attacks occurred in her shoulders wrists, knees, and other joints In about a year the attacks became more frequent but the pain was able to be relieved by medicine given her by her doctor, but all medication failed to stop the progressive nature of her complaint The joints began to become permanently swollen and stiff till she could only get up and move about with great difficulty

During the summer months there was always some alleviation but March was her worst time, the pain coming on worse in the evening like very bad toothache lasting through the night and becoming bearable in the morning allowing her to attend to some household duties This went on for several years during which time besides medication she tried vapour baths and brine baths at Droitwich without any effect. She was also in the Cambridge Hospital for Special Diseases for some three weeks without any permanent benefit About four years ago the patient got very much worse till nearly every joint in her body was affected, and she was never free from pain, with very bad sleepless nights

Two years ago when treatment with Phylacogen was commenced, the picture was that of an advanced and very bad case of arthritis deformans The patient suffered continually agonising pain, which distorted her features when she moved, could not bear the weight of her bed-clothes at night, could with difficulty and great pain just manage to shuffle a few inches at a time across the floor even the thickness of the oil-cloth covering being an obstacle requiring the greatest care to negotiate It took her quite three minutes to rise from or get down to a chair, she could not raise her hands above the level of her chest had to be carried up and down stairs had not been out of doors except in a bath-chair for over two years could do nothing to dressing or feeding herself was very low spirited with no brighter outlook in life than the day when she should be confined to bed a helpless cripple

On examination nearly every joint in her body was involved even to her lower jaw and neck deformity and swelling were very marked shoulder elbows hip-joints were very stiff, but not so deformed as the other extremity joints the right wrist was completely ankylosed and left nearly so subluxation of the proximal phalanges of the right hand was complete and the left nearly so both sides being pushed over so much to the ulnar side that the little finger was almost at a right angle to its normal direction all the joints were very much swollen and tender the knees were so much deformed that one could hardly be got past the other The toes were as bad as the fingers Muscular wasting was very pronounced

Treatment began the beginning of February 1914 with 1 c c [illegible] Phylacogen injected subcutaneously into the arm and repeated in 48 hours 2 c c 48 hours after the second and repeated in 48 hours and so on an increase of 1 c c a dose a repetition of the former quantity till 10 c.c. were being given, 6 or 7 doses of 10 c c were given. There was considerable reaction to the injections at first each increase being followed by reaction, but not generally when a repeat dose was given. Shiverings and headache were the main symptoms, with a rapid pulse and sometimes small rises in temperature, the patient having to go to bed. These all passed off by the afternoon of the following day, when the patient usually felt some improvement over her previous condition. Considerable local swellings round the seat of injection occasionally occurred, but these were generally gone in 24 hours

The first effects of the injections were the diminution of pain and the absorption of the softer elements of the swellings in and about the joints Sleep very soon became normal, and from a nervous wreck the patient became her former high spirited self In about three weeks she walked to the top of her street a considerable climb, and the following Sunday walked to church about 500 yards Strength came back progressively till she could grasp firmly and without pain. Spells of damp weather and East winds bringing back pain and swelling in some of her joints she had some more injections during the first 12 months and a second course in January and February, 1915 somewhat like the first course, but reaching the maximum dose, 10 c c., more quickly During May and October she had more doses of 5 to 10 c.c. weekly, more as a prevention than really required by any set-back

In all the patient has had about 500 c.c

All pain and swelling has gone except in so far as the ends of the bones themselves are enlarged, but there are indications that these swellings are in course of modification and getting smaller This is specially noticeable in the metacarpo-phalangeal joint of the left little finger Before treatment the relative position of the ends of the bones could not be made out owing to the great swelling of the peri-articular tissues This swelling has quite gone and the proximal end of the phalange is on the ulnar side of the metacarpal bone, quite half an inch from the end, the ends of the bones are not increased and seem denuded of cartilage

For many years the patient had not been able to take off her wedding ring owing to the enlarged finger joint but within a few weeks after the commencement of treatment the ring came off without difficulty

The gradual onset one joint becoming acutely inflamed, and then a period of quiescence, followed by an attack in a different joint each succeeding attack being more severe and accompanied by rise in temperature and general disturbance, seems to point to a blood infection by some organism which had a selective preference for the joints, gradually weakening their resistive power till a general disease of the joints was set up

Another point of interest in this case was the constant and fairly severe reaction which followed each increase in the dose

The patient is now in excellent health and spirits, and within the past month she made the journey alone to Yorkshire whither she went for a holiday (June 30, 1916)

Other reports showing the value of Rheumatism Phylacogen in rheumatic conditions will be found in our booklet, Phylacogen Therapy a copy of which we shall be glad to send to any medical man on request

PARKE, DAVIS & Co
50, Beak Street Regent Street London, W

THE

NESTA

PATENT HYGIENIC SPRING MATTRESS

IS THE **ONLY MATTRESS**

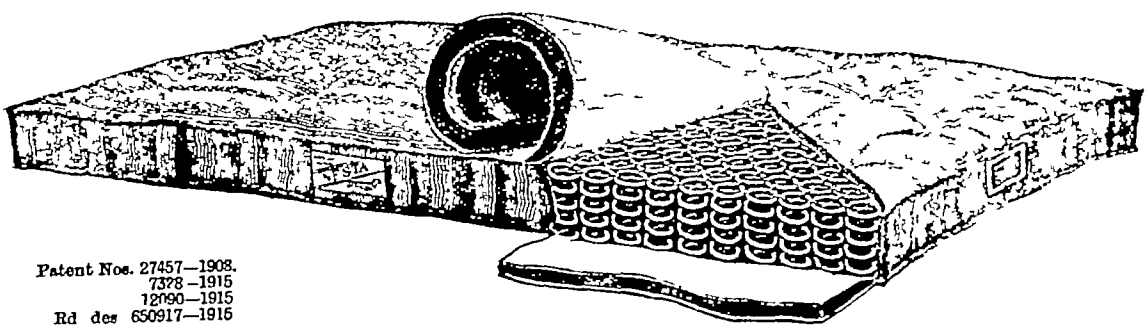
THAT HOLDS

THE CERTIFICATE OF THE INSTITUTE OF HYGIENE.

THE "NESTA" IS AN OVERLAY MATTRESS

and is constructed in the latest and most approved principle, the internal filling is composed of specially tempered steel wire springs, before the springs are manufactured the wire is covered, by our own machinery, with a white cotton moisture-proof braid which renders the springs not only noiseless in action but at the same time rustproof—a sure preventive against the discomfort of broken springs Each spring is secured to its neighbour, thus forming an entire surface of springs The means of securing the springs is so ingenious that, whilst not one of the numerous springs can ever lose its original position, it is impossible for any one spring to interfere with the action of its neighbour, but, on the contrary, each spring assists those near it, thus preventing any undue strain on any one or batch of springs By varying the gauge of wire used, the "Nesta" Mattress can be made to any required resiliency—from the luxurious softness of a down bed to the firmness of a good hair mattress The internal spring filling is covered with calico, which is then upholstered in wool or hair according to the quality The "Nesta" Pillow, made on the same principle, will never lose its shape, and is a revelation of comfort to those who have only used the ordinary feather pillow

ENTIRELY BRITISH THROUGHOUT



Patent Nos. 27457—1908.
7378—1915
12090—1915
Rd des 650917—1915

The "NESTA" is made in all sizes and several qualities, including the "PREMIER," which is as light as an ordinary hair mattress The "COT" Mattress is specially suitable for young growing children, and will recommend itself to all Medical Men

Sold by all high class Furniture shops or Catalogues, full particulars, and name of nearest Agent will be gladly sent on receipt of a card

"NESTA," LTD. (Dept 32), 60, Silver St., Edmonton, London, N.

THE LANCET.

LONDON SATURDAY AUGUST 5, 1916

Provision for the War Cripple

IN spite of the marvellous development of modern artillery and small arms for their work of destruction, the vast majority of wounds which they inflict are such as to enable the bearer to return to his military duties within a longer or shorter time In an address delivered at the Surgical Section of the Royal Society of Medicine, which we summarise in another column, Major TAIT MCKENZIE, R A M C, describes the various degrees of disability and what is the plan adopted for each, with particular reference to the class of cases in which special, and in many instances prolonged, treatment is required In order to unload the military hospitals and to group these men where the personnel and paraphernalia for special treatment are conveniently accessible, Command Depôts have now been established up and down the country, each containing 2000 or 4000 beds Nine depôts are at present in existence—at Seaford, Shoreham, Tipperary, Ballyvonare (Buttevant), Randalstown, Ripon North, Sutton Coldfield, Kinmel Park (Rhyl), and Heaton Park (Manchester) Major MCKENZIE gives an outline of the methods employed at one of these for relieving the stiffness of muscles and of joints, after the actual injury which caused them has healed and in general for restoring to convalescence by appropriate means any physical disability, whether due to wounds or to the diseases incidental to service As the methods have evolved and systematised, and as experience in selection of cases has grown, results are being obtained in this country comparable to those which have been claimed for similar methods in France,[1] and a larger proportion of wounded men have returned to the front or have been retained for some less arduous form of military service

Unfortunately, when everything possible has been done for them, there remains a certain number of luckless ones whose disability is such as to incapacitate them from further service From our Navy and Army, numbering millions, employed in every form of service in many parts of the world, a large quota of discharges on account of permanent disablement might well be expected It is therefore with a sense of relief that we note the actual figures quoted in a circular (No 9) sent down by the War Pensions Statutory Committee to the Local Committees From the beginning of the war up to May 31st, 1916, a period approaching two years, the total number of disabled sailors and soldiers discharged from all causes was 33,919 Of these, 1381 were eyesight cases, 2224 wounds of arm or leg necessitating amputation, 12,529 wounds or injuries of limbs in which the limb could be retained, 2446 wounds and injuries to the head, 2122 other wounds and injuries, leaving 13,017 invalided on account of chest complaints, heart disease, rheumatism, and other disabilities in smaller number Similar figures are available for a year ago, and a comparison of the two returns allows a rough calculation of the monthly incidence of disability, amounting to 90 eyesight cases, 150 amputations, and 950 injuries to limbs not requiring removal Representing, as this monthly figure must do, an appalling amount of individual suffering, whether directly as a result of wounds and disease, or from its remoter effects on a man's prospects and outlook upon life, the figure is, at all events, now known, and the problem of dealing with it one which can be squarely faced

The task of making provision for the care of disabled officers and men after they have left the service is one of the most important functions devolving on the Local Committees of the War Pensions Statutory Committee For those who are completely and permanently disabled for any kind of useful employment, nothing remains but the allotment of a pension sufficient to maintain a comfortable life free from anxiety For this purpose six million pounds have been allotted by the Exchequer in the expectation that supplementary funds will be at the disposal of Local Committees The number of men who have so far been awarded a permanent pension on the full totally disabled rate is very small The Central Committee is alive to the undesirability of condemning men to a life of idleness if this can possibly be avoided, and the Local Committees have been asked to see in every case how far the disabled man may be encouraged to take light employment, and in the case of the partially disabled to be educated for taking his full share again in the industry of the country For some the prospect is open of training leading to employment on an agricultural colony, but the Central Committee has laid down that, so far as practicable, disabled men should be encouraged to return to their own homes and to take their place in the ordinary industrial community under normal conditions of employment The Board of Trade is giving consideration to the best method of guidance as to the rate of wages to be paid by the employer in any particular case The success of the whole scheme will rest with the action of the Local Committees Some of these are already formed and in active work, others have not yet buckled to their task On them devolves the personal and friendly contact with the disabled man which will enable the nation's debt to him to be discharged with individual thoughtfulness and care Nothing can completely compensate the war cripple for his disability, but it is in the power of the War Pensions Local Committees to see that his life is made as happy and as useful as his disability permits

[1] THE LANCET March 25th p 691

THE

NESTA

PATENT HYGIENIC SPRING MATTRESS

IS THE ONLY MATTRESS

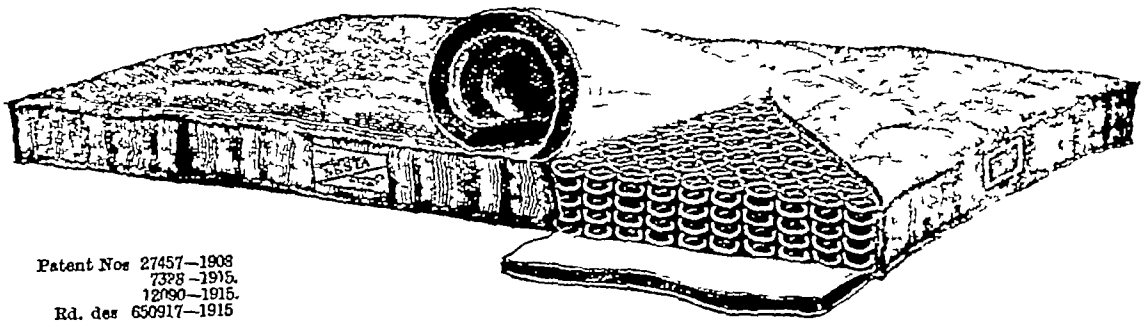
THAT HOLDS

THE CERTIFICATE OF THE INSTITUTE OF HYGIENE

THE "NESTA" IS AN OVERLAY MATTRESS

and is constructed in the latest and most approved principle, the internal filling is composed of specially tempered steel wire springs, before the springs are manufactured the wire is covered, by our own machinery, with a white cotton moisture-proof braid which renders the springs not only noiseless in action but at the same time rustproof—a sure preventive against the discomfort of broken springs Each spring is secured to its neighbour, thus forming an entire surface of springs The means of securing the springs is so ingenious that, whilst not one of the numerous springs can ever lose its original position, it is impossible for any one spring to interfere with the action of its neighbour, but, on the contrary, each spring assists those near it, thus preventing any undue strain on any one or batch of springs By varying the gauge of wire used, the "Nesta" Mattress can be made to any required resiliency—from the luxurious softness of a down bed to the firmness of a good hair mattress The internal spring filling is covered with calico, which is then upholstered in wool or hair according to the quality The "Nesta" Pillow, made on the same principle, will never lose its shape, and is a revelation of comfort to those who have only used the ordinary feather pillow

ENTIRELY BRITISH THROUGHOUT



Patent Nos 27457—1908
7328—1915.
12090—1915.
Rd. des 650917—1915

The "NESTA" is made in all sizes and several qualities, including the "PREMIER," which is as light as an ordinary hair mattress The "COT" Mattress is specially suitable for young growing children, and will recommend itself to all Medical Men.

Sold by all high class Furniture shops or Catalogues full particulars, and name of nearest Agent will be gladly sent on receipt of a card

"NESTA," LTD. (Dept 32), 60, Silver St., Edmonton, London, N.

presided over by Mr. E B Turner, some very important subjects were discussed Chief among these was the position occupied by the general practitioner with reference to the State treatment of venereal diseases Following the advice in the final report of the Royal Commission on Venereal Diseases, the State, through the Local Government Board, now proposes to organise arrangements for adequate laboratory facilities and skilled free treatment, the measures being entrusted to councils of counties and to county boroughs, while 75 per cent of the cost of carrying out the schemes are to be met out of the Imperial Exchequer Immediate adequate facilities for the diagnosis and treatment of venereal diseases—syphilis, gonorrhœa, and soft chancre being so defined—are to be furnished when and where they are absent or deficient This means the establishment of clinics at hospitals, the gratuitous supply of salvarsan or its substitutes, and laboratory facilities for aid in diagnosis The circular letter from Mr Long, President of the Local Government Board, asking for the help of public bodies concerned, pointed out that such clinics should be available for the treatment of all comers without distinction as to means or place of residence, adding, very properly though with some discrepancy that the treatment should be given as far as practicable in co operation with the patient's own doctor The position is an anxious one for the general practitioner and a serious one for the public, who will certainly not desire to see the personal medical adviser superseded by officials On the motion of Dr Macdonald, it was decided unanimously by the Representative Meeting that a deputation should go to the President of the Local Government Board to explain the issues involved. It is intended to secure a pledge that an Order will be issued by the Board to every local authority concerned, requiring it to have effective consultation with a representative of the local medical profession at the earliest stage of the scheme, and through all its stages

The energies of the Association have been devoted in a great measure since the breaking out of the war to the securing of a good supply of officers for the Royal Army Medical Corps The Central Medical War Committee has accepted with gratitude the great organising assistance of the Association, and with the aid of the public departments concerned—namely, the Local Government Board, the Board of Education, and especially the National Health Commission—it has been possible for the Committee to consider both the medical needs of the general public and the individual positions of those accepting commissions It is well known to our readers that recently the War Office has felt compelled to modify the terms under which temporary commissions in the Royal Army Medical Corps were given, and the departure from the definite agreement that these commissions entailed one year only of service was naturally made the subject of debate at the Representative Meeting A message from Sir Alfred Keogh, the Director General of the Army Medical Service, was delivered to the meeting by Sir Robert Morant, defining and explaining the changes which had taken place Sir Alfred Keogh's communication will be found on p 253 of this issue of THE LANCET It emerged from the discussion of the activities of the Central Medical War Committee that the British Medical Association up to the end of 1915 had spent no less than £900 on the work of the Committee, while a motion to ask the Government for reimbursement was patriotically rejected

THE EARLY DIAGNOSIS OF PULMONARY TUBERCLE

THE difficulties attending the early diagnosis of pulmonary tubercle in certain cases are well recognised, but since the welfare of the patient depends on a prompt recognition of his condition the difficulties have much exercised the mind of the profession, as various important clinical and laboratory methods bear witness A new method has been worked out by Professor Carlo Martelli, of the University of Naples, and is described in the issue of *Il Policlinico* of July 9th (Practical Section) Briefly, the technique consists of the following steps (1) To promote bronchial secretion and expectoration by means of iodides, one half to one gramme daily, given with decoction of senega and syrup of ipecacuanha for two or three days, (2) to collect the sputum, 100-200 or more c c, and homogenise it with an equal quantity of antiformin for two to four hours in a thermostat, (3) thoroughly to centrifugalise the material in conjunction with repeated washings with physiological salt solution, (4) to make smears of all the residue, staining the preparation with Ziehl's carbol fuchsin in the ordinary way and another after Much's method for granules Professor Martelli claims that this technique will reveal the presence of scanty bacilli and collections of Much granules in cases where neither clinical nor ordinary bacteriological methods are sufficient to form a diagnosis We question whether it is ever necessary to resort to the induction of an iodide bronchial catarrh which may indeed in certain cases reveal bacilli, but only at the expense of turning a "closed' case into an "open" one If there is close coöperation between the clinician and the laboratory expert, ensuring the obtaining of the most suitable specimens of sputum for examination, we believe that the tubercle bacilli, when present, will rarely fail to be found by ordinary means Experience shows that bacilli are rarely revealed by the antiformin method when not discovered in direct films

TETANUS DUE TO THE USE OF CATGUT

ONE of our correspondents in Scotland described in THE LANCET of July 1st (p 33) the establishment of a factory in Edinburgh for the manufacture of surgical catgut, a product for which we depended on Germany before the war He stated that the manufacturer had found it impossible to produce from catgut, obtained under septic conditions, a sterile ligature by means of a subsequent medication after the strings had been twisted and dried without impairing the tensile strength The difficulty of sterilisation is illustrated by an unfortunate case reported to the Academie de Medecine of Paris on June 20th by M. Charles Nicolle and M Henri Bouquet A woman, aged 47 years, was admitted to the French Civil Hospital, Tunis, with a large umbilical hernia, partly reducible Morestin's operation for radical cure was performed, a transverse incision being made above and below the umbilicus, when a large flap of skin and fat was removed When the sac was opened the omentum was found adherent and was resected after ligature with catgut The intestine was not seen The sac was resected and closed The aponeuroses were united by three catgut sutures The wound in the skin was closed by metallic sutures and Michel's clasps A small drain was inserted at each end The drains were removed on the third day and the patient did well until the sixth day, when, although the wound

The Regulations with Respect to the Sale of Cocaine

MINISTERIAL statements in the House of Commons had prepared the way for the announcement of some forms of restriction on the distribution of cocaine, but few people expected that the regulations would be so drastic as those which were gazetted last week, coming into force forthwith And yet the new conditions are by no means unnecessarily strict, for there is no occasion—or we know of none—requiring the use of cocaine except under the supervision of properly qualified persons Legislation such as that, which has been enacted does not accord with preconceived views in this country with respect to provision for the use of poisons, and it is doubtful whether in peace time it would have been possible to secure the adoption of such a course as that indicated by the Order in Council, but the evils in the midst of which we live are constantly being relieved by vigorous movements towards reform Not only is it made an offence to import cocaine except under licence, but it is now illegal for any unauthorised person to have cocaine in his possession, or for a pharmaceutical chemist to supply cocaine except on the written order of a medical practitioner Thus by one stroke of the pen, as it were, the trivialities of the Pharmacy Acts are replaced by effective prevention of the abuse of a mischievous drug And the Pharmaceutical Society—the body that administers the Pharmacy Acts—has been well advised in adopting the policy of coöperating with the Government in the endeavour to put a stop to a baneful traffic It would not have been wise either in behalf of the Society or of pharmacists in general, to plead, in the one case, a vested interest in the administration of the Pharmacy Acts and, in the other, a vested interest in the sale of cocaine The central pharmaceutical authority has placed the welfare of the State before its own, and deserves the hearty commendation of the public

The new regulations, severe as they may appear to the ordinary observer, are less stringent than those after which they are fashioned—namely, the regulations framed under the Harrison law of the United States In America, as has been explained in THE LANCET recently, it is not sufficient for the prescriber of cocaine to be a registered medical practitioner or for the dispenser to be a qualified pharmacist—both prescriber and dispenser must also be registered under an "anti narcotic law" But the principle and the object of the American legislation are the same as our own, the principle in each case being the restriction of the distribution of cocaine to well defined channels, and the object the prevention of the cocaine habit In future the cocaine habitue will be dependent for his supplies of the drug on clandestine sources, and as it is no doubt correct to assume that special efforts will be made to prevent smuggling, we may take it that the cocaine habitue will soon be almost an extinct type in this country The new regulations affect medical practice only as regards the writing of the prescription A medical man who writes a prescription of which cocaine is one of the items must (1) sign it with his full name and address and qualifications, (2) write the date on it, (3) mark it with the words, "Not to be repeated", and (4) specify the total amount of cocaine to be supplied These requirements entail departures from the practice usually observed by prescribers, but it is important that they should do exactly as the new law requires. Strangely enough, it is not necessary in prescribing a proprietary medicine containing cocaine to state the total amount of cocaine to be supplied, it is sufficient to state the quantity of the proprietary medicine It is not quite clear why this distinction is made Preparations containing less than one part of cocaine in a thousand do not come under the regulations

The pharmaceutical chemist is affected by the new conditions to the extent that he may only supply cocaine on, and in accordance with, a written prescription of a medical practitioner, which prescription he may only dispense once, except in pursuance of fresh directions duly endorsed on the prescription by the medical practitioner by whom it was originally issued Registered dentists and registered veterinary surgeons are not prohibited from using cocaine in their practices, but this exemption does not extend to non registered dental practitioners, and it is to be hoped that the Government will continue in their refusal to alter the regulations for the benefit of such unqualified persons Anyone may be an unqualified dentist, and if we allow an unqualified dentist the right to have cocaine in his possession theoretically we allow the same privilege to everybody The regulations as to the importation of cocaine without licence, and as to the possession of cocaine, also apply to "raw opium, powdered or granulated opium, or opium prepared for smoking" and any solid or semi solid mixture containing opium

Annotations.

"Ne quid nimis"

THE ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION

THE eighty fourth annual meeting of the British Medical Association was held in London last week, Dr J A Macdonald, chairman of the Council presiding, in the unavoidable absence of Sir Alexander Ogston The scientific and social side was very properly dropped on account of the war At the General Meeting Sir Clifford Allbutt was elected President of the Association for the ensuing year in succession to Sir Alexander Ogston The gathering was reminded by one of the members that they were assembled on the eve of the fiftieth anniversary of the death of Sir Charles Hastings the founder of the Association, and a motion was carried unanimously recording "the unabated veneration of the British Medical Association for its ever honoured founder" The Representative Meeting had already recorded its deep regret at the untimely and patriotic death of Sir Victor Horsley, the first chairman of Representative Meetings after the reconstitution of the Association.

While the business of the General Meeting was purely formal, at the Representative Meeting

presided over by Mr. E B Turner, some very important subjects were discussed Chief among these was the position occupied by the general practitioner with reference to the State treatment of venereal diseases Following the advice in the final report of the Royal Commission on Venereal Diseases, the State, through the Local Government Board, now proposes to organise arrangements for adequate laboratory facilities and skilled free treatment, the measures being entrusted to councils of counties and to county boroughs, while 75 per cent of the cost of carrying out the schemes are to be met out of the Imperial Exchequer Immediate adequate facilities for the diagnosis and treatment of venereal diseases—syphilis, gonorrhœa, and soft chancre being so defined—are to be furnished when and where they are absent or deficient This means the establishment of clinics at hospitals, the gratuitous supply of salvarsan or its substitutes, and laboratory facilities for aid in diagnosis The circular letter from Mr Long, President of the Local Government Board, asking for the help of public bodies concerned, pointed out that such clinics should be available for the treatment of all comers without distinction as to means or place of residence, adding, very properly though with some discrepancy that the treatment should be given as far as practicable in co operation with the patient s own doctor The position is an anxious one for the general practitioner and a serious one for the public, who will certainly not desire to see the personal medical adviser superseded by officials On the motion of Dr Macdonald, it was decided unanimously by the Representative Meeting that a deputation should go to the President of the Local Government Board to explain the issues involved. It is intended to secure a pledge that an Order will be issued by the Board to every local authority concerned, requiring it to have effective consultation with a representative of the local medical profession at the earliest stage of the scheme, and through all its stages.

The energies of the Association have been devoted in a great measure since the breaking out of the war to the securing of a good supply of officers for the Royal Army Medical Corps The Central Medical War Committee has accepted with gratitude the great organising assistance of the Association, and with the aid of the public departments concerned—namely, the Local Government Board, the Board of Education, and especially the National Health Commission—it has been possible for the Committee to consider both the medical needs of the general public and the individual positions of those accepting commissions It is well known to our readers that recently the War Office has felt compelled to modify the terms under which temporary commissions in the Royal Army Medical Corps were given, and the departure from the definite agreement that these commissions entailed one year only of service was naturally made the subject of debate at the Representative Meeting A message from Sir Alfred Keogh, the Director General of the Army Medical Service, was delivered to the meeting by Sir Robert Morant, defining and explaining the changes which had taken place Sir Alfred Keogh's communication will be found on p 253 of this issue of THE LANCET It emerged from the discussion of the activities of the Central Medical War Committee that the British Medical Association up to the end of 1915 had spent no less than £900 on the work of the Committee, while a motion to ask the Government for reimbursement was patriotically rejected.

THE EARLY DIAGNOSIS OF PULMONARY TUBERCLE

THE difficulties attending the early diagnosis of pulmonary tubercle in certain cases are well recognised, but since the welfare of the patient depends on a prompt recognition of his condition the difficulties have much exercised the mind of the profession, as various important clinical and laboratory methods bear witness A new method has been worked out by Professor Carlo Martelli, of the University of Naples, and is described in the issue of *Il Policlinico* of July 9th (Practical Section) Briefly, the technique consists of the following steps (1) To promote bronchial secretion and expectoration by means of iodides, one half to one gramme daily, given with decoction of senega and syrup of ipecacuanha for two or three days, (2) to collect the sputum, 100-200 or more c c., and homogenise it with an equal quantity of antiformin for two to four hours in a thermostat, (3) thoroughly to centrifugalise the material in conjunction with repeated washings with physiological salt solution, (4) to make smears of all the residue staining the preparation with Ziehl s carbol fuchsin in the ordinary way and another after Much's method for granules Professor Martelli claims that this technique will reveal the presence of scanty bacilli and collections of Much granules in cases where neither clinical nor ordinary bacteriological methods are sufficient to form a diagnosis We question whether it is ever necessary to resort to the induction of an iodide bronchial catarrh which may indeed in certain cases reveal bacilli but only at the expense of turning a "closed" case into an "open" one If there is close coöperation between the clinician and the laboratory expert, ensuring the obtaining of the most suitable specimens of sputum for examination, we believe that the tubercle bacilli, when present, will rarely fail to be found by ordinary means Experience shows that bacilli are rarely revealed by the antiformin method when not discovered in direct films

TETANUS DUE TO THE USE OF CATGUT

ONE of our correspondents in Scotland described in THE LANCET of July 1st (p 33) the establishment of a factory in Edinburgh for the manufacture of surgical catgut, a product for which we depended on Germany before the war He stated that the manufacturer had found it impossible to produce from catgut, obtained under septic conditions, a sterile ligature by means of a subsequent medication after the strings had been twisted and dried without impairing the tensile strength The difficulty of sterilisation is illustrated by an unfortunate case reported to the Academie de Medecine of Paris on June 20th by M. Charles Nicolle and M Henri Bouquet A woman, aged 47 years, was admitted to the French Civil Hospital, Tunis, with a large umbilical hernia, partly reducible Morestin s operation for radical cure was performed, a transverse incision being made above and below the umbilicus, when a large flap of skin and fat was removed When the sac was opened the omentum was found adherent and was resected after ligature with catgut The intestine was not seen The sac was resected and closed. The aponeuroses were united by three catgut sutures The wound in the skin was closed by metallic sutures and Michel's clasps A small drain was inserted at each end. The drains were removed on the third day and the patient did well until the sixth day, when, although the wound

looked well, the temperature rose to 101 1° F. On the seventh day she refused food because of "pain in the throat, and wry neck" On the eighth day there were trismus and attacks of opisthotonos The wound still looked well, but there was a slight purulent discharge from the point of drainage on the left side Death took place on the ninth day in spite of serum treatment instituted two and a half days after the appearance of symptoms of tetanus After death the wound was opened In the position of the aponeurotic suture the tissues were greyish and there was a little pus Two catgut sutures were removed, and after wiping with gauze were sent in sterile tubes to the Pasteur Institute There the catgut was washed in normal saline solution and desiccated at a temperature of 98 6° F for eight hours It was then broken up in a little bouillon and inoculated with some drops of the latter in the muscles of the thigh of two guinea pigs and two mice After an incubation period of 48 to 72 hours tetanus appeared in all the animals It rapidly became generalised in the mice, who succumbed on the fifth day, but it remained local in the guinea pigs There was therefore no doubt that the patient's death was due to the presence of tetanus spores in the catgut This had been obtained from an important French house in sealed tubes, and the anhydrous vapours of acetone had been used to sterilise it It is noteworthy that at a recent meeting of the Academie de Médecine a well known surgeon, M Quénu, declared that he had never experienced any serious accidents due to the use of catgut

EXOPHTHALMOS IN LEUKÆMIA

Dr C Schiötz describes (*Tidsskr f d Norske Laegeforening*, Christiania, 1916, xxxvi., 545, 601) the case of a cellulose worker, aged 22, who had an attack of "influenza" at the beginning of 1915 and remained unwell thereafter During May and June he was ill in bed, with headache, chilliness, dizziness, and increasing exhaustion, while his sight became very bad for a time Early in August his eyes began to protrude from their orbits, and diplopia and epiphora were noted He went into hospital and was found to have an enlarged liver, though the spleen could not be felt and the lymphatic glands were but little enlarged The blood count showed 1,600,000 red cells per c mm and 84,000 white cells, of which three quarters were large lymphocytes 13 to 17 μ in diameter, 16 per cent were small lymphocytes, 8 per cent neutrophile cells, the red cells varied considerably in size and shape Both eyes protruded, particularly the right, and showed limited movements Both conjunctivæ were chemotic, on the right side so much so that the eye could not be closed The optic discs looked cloudy and were swollen two diopters high there were hæmorrhages round the right disc Examination of the patient's thorax with the Roentgen rays showed a general enlargement of the bronchial lymphatic glands on the right side The patient was given arsenic, and at the same time was treated with the Roentgen rays, the orbits hepatic region, and splenic region each receiving four exposures So far as the eyes were concerned, the result was excellent, the exophthalmos and chemosis entirely disappeared within a fortnight The patient continued to have headache at times, however, and the blood count exhibited little or no improvement, the percentage of hæmoglobin, measured by Sahli s method, falling in five weeks from 45 to 25, Dr Schiötz notes that the temperature chart from time to time was just like that of tertian malaria, attacks of fever up to 102 4°F recurring at intervals of 48 hours for several days together Discussing the etiology of exophthalmos in leukæmia, he says that it is commonly attributed to the presence of lymphomas within the orbits Dissatisfied with this explanation, he develops at some length the view that it may be a toxic phenomenon, and may result from the action of a toxin produced by the unknown infecting agent that causes leukæmia He quotes the case of a farmer, aged 48, whom he saw in 1914, who developed slight exophthalmos apparently as the result of smoking too much tobacco (15 to 20 pipes a day), and notes that nicotine poisoning can produce widening of the palpebral fissure and protrusion of the eyeball in experimental animals. Other drugs capable of causing exophthalmos are adrenalin, paraphenylene diamine, salvarsan, tetrahydronaphthylamine, and dionin Among the diseases in which exophthalmos may sometimes occur are Ibrahim's primary chronic arthritis of children, lead poisoning, malaria, pellagra, and leukæmia Dr Schiötz points out that all the drugs he mentions are amino bodies, and he argues that probably something is amiss with the metabolism in the diseases in which exophthalmos sometimes occurs, with the result that toxic amino bodies, perhaps connected with the purins, find their way into the circulation and cause protrusion of the eyeballs He thinks it doubtful whether this protrusion can be brought about by stimulation of the weak layers of involuntary muscle found in the orbits

TRICHINÆ IN THE CEREBRO-SPINAL FLUID

OVER two years ago Dr William Lintz, of Long Island College Hospital, demonstrated for the first time the trichina spiralis in the cerebro spinal fluid of a patient suffering from trichinosis, and expressed the view that lumbar puncture might prove useful in the diagnosis of the disease In the *Journal of the American Medical Association* of June 10th he has returned to the subject and pointed out that this discovery has been confirmed by Leon Bloch, Young, and others It is noteworthy that in the case reported by the latter, while the parasites were demonstrable in the cerebro spinal fluid, they could not be found in the muscle tissue Dr Lintz now reports three more cases in which he found trichinæ in the cerebro spinal fluid All the patients were Italians who had eaten infected pork 21 days before lumbar puncture Typical trichinosis developed In performing lumbar puncture every precaution was taken not to introduce into the trocar parasites which might be present in the muscles of the back The trocar was introduced with its stilet, and the latter was withdrawn only after the cerebro spinal canal was reached In appearance the fluid was normal and showed no sediment There was a faint trace of albumin On centrifugalisation the sediment showed only an occasional lymphocyte and 1 to 4 trichina embryos per field These were motile and retained their activity to some extent for three days when kept at room temperature If the trichinæ be found in the cerebro spinal fluid with some frequency this method should prove useful in diagnosis In the same number of the *Journal of the American Medical Association* Dr W T Cummins and Dr G R Carson report a case of trichinosis in which, after an exhaustive search of several sedimentised specimens of cerebro spinal fluid, one sluggish embryo, 0 1 mm long and 0 006 mm broad, was found

THE ACQUIREMENT OF SINGLE-HANDED DEXTERITY

MANY limbs have been lost and are still being lost in the present war and all the resources of modern surgical ingenuity are at work to replace them. Artificial arms and legs may attain a high degree of perfection and their evolution is doubtless not yet complete but there is this difference between the arm and the leg that, whereas an artificial leg can replace fairly well all the ordinary functions of the real limb and adequately serve for home and business life, the artificial hand as at present evolved can only perform a few of the functions of the real hand whose loss will always be painfully felt so long as its fellow is not specially trained in single handed dexterity The experience of those who have lost an arm and who have become expert in the single use of the other should be of help to those who are still novices

Count Zichy lost his right arm when he was only 14, and 51 years later at the age of 65 he published at Budapest an illustrated manual which he called the 'Book of the One armed' or "Hints for Developing the Capacity of Becoming Independent with only One Hand.' A distinguished Viennese surgeon Freiherr von Eiselsberg contributes an introduction to this manual, in which he says —

I have indeed as a young student already had the opportunity of admiring your inimitable art as piano virtuoso and worthy pupil of your great master, Liszt and when I had the pleasure in later years of making your personal acquaintance I saw with astonishment of what remarkable skill your single hand was capable The book, whose clear style and instructive illustrations I as a surgeon can specially value should be of special interest at the present time when so many are losing an arm While a foot can comparatively easily be almost completely replaced by an artificial limb this is unfortunately not at all the case with a lost arm The book will bring comfort to the maimed and will show that where the will is iron the loss even of an arm may be lightly borne. In reading your book who will not be reminded of Helen Keller's work, which shows what untiring diligence and practice may effect even when two important senses as sight and hearing are lost Your book dear Count Zichy will certainly help many soldiers to bear their misfortune more easily

Count Zichy describes in his memoirs the accident which deprived him of his arm. It was at a hunt, and his servant had left two loaded guns leaning against the back seat of the donkey cart One of these went off at the shortest possible range severing the right brachial artery and necessitating a primary amputation. On recovering from the operation the Count was so annoyed at the irritating roughness of his servant who mocked at his helplessness that he chased him from the room and determined to dress alone He describes the proceeding thus —

It took me three hours but I succeeded. I made use of the door handle, articles of furniture, my feet and teeth in order to accomplish it At table I ate nothing which I could not cut up, and to-day I peel apples, cut my nails, ride manage a four in hand, and with gun and rifle am quite a fair shot If the grace of God permits me yet time on earth I will write, for the use and benefit of so many young men, the "Book of the One-armed"

Count Zichy then gives exact details in the book, with illustrations, of the various operations, four of which we reproduce here.

His closing words are full of encouragement While repeating his warning that superhuman patience is necessary to the attainment of one armed dexterity he urges the novice to look forward hopefully to a life of independence and usefulness 'You must not pass your life in mourning," he says, "so many posts are open to you. If a soldier of high rank you may indeed continue to serve, particularly with infantry In every business office you are available. If you are not well off seek a position of trust as overseer, porter, and so forth. If you are a gamekeeper apply to the forester I am convinced that in a factory one can attain to a certain usefulness and also on a farm."

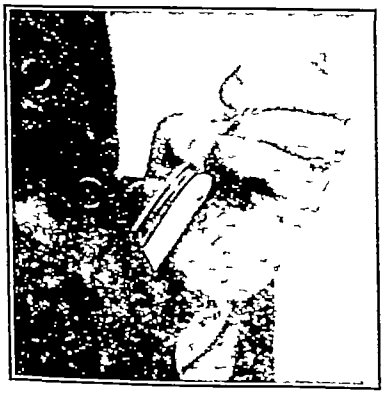
FIG 1

An example of the use of the teeth One end of the tie is held between the teeth leaving the hand free to make the loop

FIG 2

Showing a penknife being opened by the thumb and middle finger while held in place against the chest by the index finger

FIG 3



Cutting the nail of the little finger while the thumb keeps the knife in position against the chest and presses on the back of the blade.

FIG 4

Peeling an apple. The quarter is held nearly upright, the thumb pressing lightly at the lower end, while the knife begins to cut from the top The quarter inclines as the cutting proceeds until it finally lies on the plate

THE SERVICES

ROYAL NAVY MEDICAL SERVICE

THE following appointments have been notified —Staff Surgeons J D Keir to *Hyacinth* and J R Clark Hall to *Dolphin* Temporary Surgeons J J Gasperine, W W K. Brown, A W Walker, and E M Harrison

ROYAL ARMY MEDICAL CORPS

Major I A. O MacCarthy is retained on the Active List and to be supernumerary

A E Ward to be temporary Honorary Captain whilst employed at the Springburn and Woodside Central Red Cross Hospital

Temp Captain G F Darker relinquishes his commission

Temporary Lieutenants to be temporary Captains T Perrin, R D Lawrie, R N Thomson, and C C Holman

Temporary Honorary Captain R W Collum relinquishes his commission on ceasing to be employed with St John Ambulance Brigade Hospital

Temporary Lieutenants H Parsons and C Cooper relinquish their commissions

Canadian Army Medical Corps Major W H Merritt, from Canadian Artillery, to be temporary Major

Captains to be temporary Majors R M Gorssline, E C Cole, A W McPherson, and J S Jenkins

INDIAN MEDICAL SERVICE

The King has approved the promotion of R J Macnamara from Lieutenant-Colonel to Colonel

The King has approved the grant of the temporary rank of Lieutenant to Narayan Mahadev Bodas, Jatis Chunder Chukerbuti, Saroj Kumar Sanyal, Bangalore Pasupuleti Balukrishna Naidu, Dhanjishaw Phirozshaw Karaka, A W Panton, Abani Mohan Ghosh, Tanguturi Janakiramiah, Philip de Mello, Jehanjir K Moolan Feroze, N B Kolsavala, Chembil Vittil Appunni Menon, A C L La Frenais, Jesudason Sellyah David, Munguldas Tuljaram Khandwalla, Kalyanpur Harihar Bhat, Premal Trambakrai Majmundar, and Rustom Pestonjee

SPECIAL RESERVE OF OFFICERS

Royal Army Medical Corps

Cadets to be Lieutenants W L Ingham and C W Dudley, from Leeds University Contingent, Officers Training Corps, C Rudd, from Birmingham University Contingent, Officers Training Corps, H G Broadbridge, from University of London Contingent, Officers Training Corps, W C C Easton, from the Manchester University Officers Training Corps, and the following from the Edinburgh University Officers Training Corps M Foster, J Bennet, A. K. Gibson, B J Ryrie, J M Smellie, D G Stoute, J A Mackenzie W N Greer, D G Duff, A. McL Ferrie, I MacKenzie, E A Mills, C Milne, J Milne, C P Penberthy, E W Fish, W Corner and R R S Weatherson

To be Lieutenants J A. Nicholson and M Stewart

TERRITORIAL FORCE

Army Medical Services

Major (temporary Colonel) F J Brown relinquishes his temporary rank on vacating the appointment of Assistant Director of Medical Services

Royal Army Medical Corps

East Anglian Field Ambulance D F Torrens to be Lieutenant

London General Hospital Captain C A Pannett is seconded while holding a temporary commission in the Royal Army Medical Corps

Wessex Casualty Clearing Station Lieutenant C A. Raison, from South Midland Casualty Clearing Station, to be Lieutenant

East Lancs Field Ambulance Lieutenant C Hibbert to be Captain

West Lancs Field Ambulance Lieutenant R Findlay to be Captain

Lowland Casualty Clearing Station D Cameron and J Chalmers to be Lieutenants

North Midland Casualty Clearing Station Lieutenant C S J Kearney to be Captain

Northumbrian Field Ambulance Major (temporary Lieutenant-Colonel) P R Ash relinquishes his temporary rank on ceasing to command a Field Ambulance

West Riding Field Ambulance Captain (temporary Major) H N Goode relinquishes his temporary rank on ceasing to command a Field Ambulance Major F Whalley to be temporary Lieut Col whilst commanding a Field Ambulance

Wessex Field Ambulance Major E B Bird to be temporary Lieutenant-Colonel whilst commanding a Casualty Clearing Station Major (temporary Lieutenant Colonel) E B Bird relinquishes his temporary rank on ceasing to command a Casualty Clearing Station

Attached to Units other than Medical Units—W A Milne (late temporary Lieutenant R A M C) C E Proctor and P G Phillips to be Lieutenants

JOURNAL OF THE ROYAL ARMY MEDICAL CORPS.

First place is given in the July issue of this journal to a well illustrated paper by Captain David Thomson and Captain J Gordon Thomson on Protozoological Researches, including investigations on the sand in Egypt undertaken to elucidate the mode of spread of amœbic dysentery and the flagellate diarrhœas The conclusions of the authors regarding the sanitary measures necessary for the prevention of these diseases are on lines "identical with those required to prevent the other intestinal scourges, such as typhoid fever and bacillary dysentery The authors advocate a larger sanitary staff in warm climates with bad sanitation In a paper on the treatment of gonorrhœa Lieutenant-Colonel L W Harrison describes successful results from treatment by intramuscular injections of mercury succinimide administered in a 5 per cent solution either in three doses of 50 milligrammes or two of 75 milligrammes at intervals of three days A paper on the Surgical and Antiseptic Values of Hypochlorous Acid (Eusol), by Captain John Fraser and Captain H J Bates, discusses the use of this antiseptic Preliminary Observations on Disinfection of the Nasopharynx of Meningococcus Carriers by means of Air Saturated with a Solution of Disinfectant are contributed by Lieutenant-Colonel M H Gordon, and a paper on Malingering by Sir John Collie, deals with the examination of the upper extremities Fly Traps for Camps, Hospital Precincts, and Trench Areas form the subject of an illustrated paper by Colonel Andrew Balfour, C M G, and the Louse Problem at the Western Front is very fully dealt with by Lance-Sergeant A D Peacock, M Sc, formerly entomologist to the Government of Southern Nigeria, lecturer in zoology at the University of Durham

VITAL STATISTICS

VITAL STATISTICS OF LONDON DURING JUNE, 1916

IN the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs With regard to the notified cases of infectious diseases it appears that the number of persons reported to be suffering from one or other of the 10 diseases specified in the table was equal to an annual rate of 4 8 per 1000 of the civil population, estimated at 4,310,030 persons, in the three preceding months the rates had been 5 6, 5 3, and 4 7 per 1000 respectively The lowest rates during the month were recorded in Kensington, Hammersmith, Fulham, the City of Westminster, and Stoke Newington and the highest rates in Shoreditch, Bethnal Green Stepney, Bermondsey, and Deptford The prevalence of scarlet fever showed no variation from that recorded in the preceding month, among the several boroughs this disease was proportionally most prevalent during June in the City of London, Bethnal Green, Stepney, Deptford, and Lewisham The Metropolitan Asylums Hospitals contained 1256 scarlet fever patients at the end of the month, against 1735 1608, and 1325 at the end of the three preceding months, the weekly admissions averaged 159, against 208, 190 and 155 in the three preceding months The prevalence of diphtheria showed only a trifling decrease in June, this disease was proportionally most prevalent in Hampstead, Shoreditch, Bethnal Green Stepney Bermondsey, and Greenwich The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 1417, 1331, and 1242 at the end of the three preceding months, had risen again to 1313 at the end of June, the weekly admissions averaged 152, against, 160 149, and 152 in the three preceding months Enteric fever showed a slightly increased prevalence as compared with that recorded in other recent months of the 35 cases notified during June, 4 belonged to Paddington, 4 to Stepney, 3 to St Marylebone, and 3 to Hackney There were 44 enteric fever patients under treatment at the end of June in the Metropolitan Asylums Hospitals, against 46 39, and 30 at the end of the three preceding months, the weekly admissions averaged 7, against 7, 7, and 5 in the three preceding months Erysipelas was proportionally most prevalent in Shoreditch, Bethnal Green, Poplar, and Deptford The 20 cases of puerperal fever included 3 in Greenwich and 2 each in Islington Holborn Poplar, Battersea and Camberwell The 44 cases of cerebro spinal meningitis included 5 in Stepney, 4 in Islington, and 3 each in Poplar Southwark Bermondsey and Lambeth The 4 cases of poliomyelitis belonged respectively to Bethnal Green Stepney, Bermondsey and Camberwell

The mortality statistics in the table relate to the deaths of persons actually belonging to the several metropolitan boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided During the four weeks ending July 1st the deaths of 3787 London residents were registered, equal to an annual rate of 11 5 per 1000, in the three preceding months the rates had

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING JUNE, 1916

(Specially compiled for THE LANCET *)*

Cities and Boroughs	Estimated civil population, 1916	Notified Cases of Infectious Disease: Small pox	Scarlet fever	Diphtheria *	Typhus fever	Enteric fever	Other continued fevers	Puerperal fever	Erysipelas	Cerebro-spinal meningitis	Poliomyelitis	Total	Annual rate per 1000 persons living	Deaths from Principal Infectious Diseases: Small pox	Measles	Scarlet fever	Diphtheria *	Whooping cough	Enteric fever	Diarrhœa and enteritis (under 2 years)	Total	Annual rate per 1000 persons living	Deaths from all causes	Death rate per 1000 living
LONDON	4,310,030	—	643	607	—	35	—	20	215	44	4	1573	4·8	—	74	7	30	60	7	57	235	0·7	3787	11·5
West Districts																								
Paddington	131 397	—	20	15	—	4	—	1	7	1	—	48	4·8	—	—	—	—	2	—	3	5	0 5	104	10 3
Kensington	155,795	—	21	7	—	—	—	—	9	2	—	39	3 3	—	—	—	1	1	1	3	6	0 5	158	13·2
Hammersmith	118,559	—	11	16	—	2	—	—	1	1	—	31	3 4	—	2	—	—	4	—	2	8	0·9	107	11·8
Fulham	151,161	—	22	9	—	—	—	—	3	1	—	35	3·0	—	—	—	—	2	—	3	5	0 4	129	11 1
Chelsea	58,421	—	9	6	—	1	—	—	2	—	—	18	4·0	—	—	—	1	—	1	3	5	1 1	57	12·7
City of Westminster	135,104	—	9	7	—	2	—	—	5	1	—	24	2 3	—	—	—	—	—	1	3	4	0 4	105	10 1
North Districts																								
St Marylebone	100 260	—	7	13	—	3	—	—	5	1	—	29	3 8	—	—	—	1	2	—	3	6	0·8	96	12·5
Hampstead	81 763	—	11	19	—	—	—	—	—	—	—	30	4·8	—	—	—	—	1	—	—	1	0·2	49	7·8
St. Pancras	209 322	—	30	25	—	2	—	1	9	2	—	69	4·5	—	6	—	1	3	—	2	12	0·8	186	12 1
Islington	316,242	—	41	55	—	2	—	2	16	4	—	120	4·9	—	9	—	2	7	1	7	25	1 1	294	12 1
Stoke Newington	50,527	—	6	4	—	—	—	1	1	1	—	13	3 4	—	—	—	—	—	—	—	—	—	43	11 1
Hackney	217 833	—	34	18	—	3	—	1	13	2	—	71	4·2	—	6	—	—	—	—	4	10	0·6	190	11 4
Central Districts																								
Holborn	40 405	—	3	8	—	1	—	2	1	1	—	16	5·2	—	—	—	1	—	—	—	1	0 3	39	12·6
Finsbury	76,915	—	8	14	—	—	—	1	4	1	—	28	4 7	—	2	—	1	2	—	2	7	1·2	96	16 3
City of London	19 461	—	7	—	—	—	—	—	1	—	—	8	5 4	—	—	—	—	—	—	—	—	—	17	11 4
East Districts																								
Shoreditch	103,627	—	22	24	—	—	—	—	11	2	—	59	7 4	—	3	—	2	—	—	2	7	0·9	109	13·7
Bethnal Green	120,207	—	33	31	—	1	—	—	9	2	1	77	8 4	—	3	—	1	1	—	1	6	0 7	105	11 4
Stepney	265,731	—	65	66	—	4	—	—	11	5	1	152	7·5	—	7	—	—	5	2	1	15	0·7	257	12·6
Poplar	156,247	—	22	25	—	2	—	2	13	3	—	67	5·6	—	2	1	2	6	—	—	11	0·9	152	12 7
South Districts																								
Southwark	179 424	—	19	32	—	—	—	1	10	3	—	65	4 7	—	12	—	5	1	—	2	20	1·5	181	13·2
Bermondsey	117 183	—	17	28	—	2	—	—	5	3	1	56	6·2	—	—	—	3	1	—	6	10	1 1	104	11·6
Lambeth	284 183	—	32	31	—	1	—	1	8	3	—	76	3·5	—	3	1	1	5	—	3	13	0·6	255	11 7
Battersea	161,945	—	29	20	—	1	—	2	9	—	—	61	4·9	—	6	2	1	3	—	—	12	1·0	129	10·4
Wandsworth	312,249	—	45	33	—	1	—	—	15	2	—	96	4·0	—	6	—	3	5	—	1	15	0·6	213	8·9
Camberwell	254,355	—	36	24	—	—	—	2	16	1	1	80	4 1	—	2	—	1	1	1	2	7	0 4	203	10·4
Deptford	110,299	—	29	15	—	2	—	—	9	1	—	56	6·6	—	1	1	—	2	—	1	5	0·6	92	10·9
Greenwich	96,355	—	8	21	—	—	—	3	6	—	—	38	5 1	—	3	—	2	2	—	—	7	0·9	89	12·0
Lewisham	164 458	—	37	19	—	1	—	—	9	1	—	67	5 3	—	1	1	1	3	—	3	9	0·7	113	9·0
Woolwich	129,506	—	15	21	—	—	—	—	7	—	—	43	4 3	—	—	1	—	1	—	—	2	0 2	115	11·6
Port of London	—	—	—	1	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

been 18 1, 17 2 and 12·9 per 1000 The death rates in June ranged from 7 8 in Hampstead, 8·9 in Wandsworth, 9·0 in Lewisham, 10·1 in the City of Westminster, 10·3 in Paddington and 10·4 in Battersea and in Camberwell to 12 7 in Chelsea and in Poplar, 13 2 in Kensington and in Southwark 13 7 in Shoreditch and 16 5 in Finsbury The 3787 deaths from all causes included 235 which were referred to the principal infectious diseases, of these, 74 resulted from measles 7 from scarlet fever, 30 from diphtheria, 60 from whooping-cough, 7 from enteric fever, and 57 from diarrhœa and enteritis among children under 2 years of age No death from any of these diseases was recorded during the month in Stoke Newington or in the City of London, among the other boroughs they caused the lowest death rates in Hampstead Holborn and Woolwich, and the highest rates in Chelsea Islington Finsbury, Southwark, and Bermondsey The 74 deaths from measles were 58 fewer than the corrected average number in the corresponding period of the five preceding years this disease was proportionally most fatal in St Pancras Islington, Hackney, Southwark Battersea, and Greenwich The 7 deaths from scarlet fever were 11 below the corrected average number, and included 2 in Battersea and 1 each in Poplar, Lambeth Deptford Lewisham and Woolwich The 30 fatal cases of diphtheria showed a decline of 8 from the corrected average number, of the 30 deaths from this disease 5 belonged to Southwark, 3 to Bermondsey, 3 to Wandsworth and 2 each to Islington Shoreditch Poplar and Greenwich The 60 deaths from whooping-cough were 12 below the average the greatest proportional mortality from this disease was recorded in Hammersmith, Islington Finsbury and Poplar The 7 deaths from enteric fever were equal to the corrected average number and included 2 in Stepney and 1 each in Kensington Chelsea the City of Westminster Islington, and Camberwell The 57 deaths from diarrhœa and enteritis among children under 2 years of age were 14 below the corrected average number this disease was proportionally most fatal in Paddington Kensington Fulham, Chelsea, the City of Westminster, St Marylebone Islington Finsbury, and Bermondsey In conclusion it may be stated that the aggregate mortality in London during June from these principal infectious diseases was 30·5 per cent below the average

HEALTH OF ENGLISH TOWNS

In the 96 English and Welsh towns with populations exceeding 50 000 persons at the last Census, 7929 births and 3469 deaths were registered during the week ended Saturday, July 29th The annual rate of mortality in these towns which had been 11 1, 10·9, and 11 1 per 1000 in the three preceding weeks, fell in the week under notice to 10·4 per 1000 of their aggregate civil population estimated at 17 312,295 persons for the year 1915 During the first four weeks of the current quarter the mean annual death rate in these towns averaged 10 8, against 10·7 per 1000 in London Among the several towns the death rate last week ranged from 3 2 in Oxford 3·4 in Enfield 3 7 in Wimbledon, 3·9 in Ilford, and 5 5 in Southport, to 14 7 in Middlesbrough and in Burnley 15 1 in Sunderland, 15 4 in Cambridge, 16·4 in Darlington, and 22 8 in Bury

The 3469 deaths from all causes were 206 below the number in the previous week, and included 221 which were referred to the principal epidemic diseases, against numbers declining from 335 to 212 in the eight preceding weeks Of these 221 deaths, 72 resulted from infantile diarrhœal diseases, 64 from measles, 36 from whooping-cough 35 from diphtheria 9 from scarlet fever, and 5 from enteric fever but not one from small pox. The annual death rate from these diseases was equal to 0·7, against 0·7, 0·7 and 0·6 per 1000 in the three preceding weeks The deaths attributed to infantile diarrhœa, which had been 54, 51, and 46 in the three preceding weeks rose to 72, of which 16 occurred in London and 5 in Liverpool The deaths from measles, which had been 60 62 and 59 in the three preceding weeks, rose last week to 64 and included 14 in London, 11 in Sheffield 6 in Liverpool 5 in Manchester, and 4 in West Ham. The fatal cases of whooping-cough, which had been 61 40 and 42 in the three preceding weeks, fell to 36, and included 4 each in London Birmingham, and Liverpool, and 3 in West Ham The deaths from diphtheria which had been 36 47 and 43 in the three preceding weeks, fell to 35 last week, and included 12 in London, 3 in St Helens and 3 in Middlesbrough The deaths from scarlet fever, which had been 4 15, and 17 in the three preceding weeks, fell to 9 last week of these 9 deaths 3 belonged to London The fatal cases of enteric fever, which had declined from

13 to 5 in the five preceding weeks, were again 5 last week and showed no excess in any particular town

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had declined from 1303 to 1216 in the five preceding weeks, rose slightly to 1221 on Saturday last, 171 new cases were admitted during the week, against 170, 150, and 172 in the three preceding weeks These hospitals also contained on Saturday last 1288 cases of diphtheria, 184 of measles, 153 of whooping-cough and 40 of enteric fever, but not one of small pox. The 878 deaths from all causes in London were 17 fewer than the number in the preceding week, and corresponded to an annual death rate of 10 6 per 1000 The deaths referred to diseases of the respiratory system, which had been 95, 117, and 99 in the three preceding weeks, fell to 90 in the week under notice

Of the 3469 deaths from all causes in the 96 towns, 136 resulted from violence 296 were the subject of coroners' inquests, and 1054 occurred in public institutions The causes of 31, or 0 9 per cent, of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest All the causes of death were duly certified in London and its 14 suburban districts, in Bristol, Leeds, Sheffield, and 60 other smaller towns Of the 31 uncertified causes, 7 were registered in Birmingham and 6 in Liverpool

HEALTH OF SCOTCH TOWNS

In the 16 largest Scotch towns with an aggregate population estimated at 2,372,000 persons at the middle of this year, 1029 births and 566 deaths were registered during the week ended Saturday, July 29th The annual rate of mortality in these towns, which had been 12 4, 12 6, and 11 2 per 1000 in the three preceding weeks, rose to 12 5 per 1000 in the week under notice During the first four weeks of the current quarter the mean annual death rate in these towns averaged 12 2, or 1 4 per 1000 more than that recorded in the large English towns Among the several towns the death rate last week ranged from 5 7 in Perth, 9·0 in Dundee, and 9 2 in Coatbridge, to 17·4 in Greenock and 18 7 in Hamilton and in Ayr

The 566 deaths from all causes were 55 above the number in the previous week, and included 37 which were referred to the principal epidemic diseases against 44 and 39 in the two preceding weeks. Of these 37 deaths, 15 resulted from infantile diarrhœal diseases, 7 from measles, 6 from diphtheria, 5 from scarlet fever, and 4 from whooping cough, but not one from either small pox or enteric fever The annual death rate from these diseases was equal to 0 8, against 0 7 per 1000 in the large English towns The deaths attributed to infantile diarrhœal diseases, which had been 5, 8, and 7 in the three preceding weeks, rose last week to 15, and included 9 in Glasgow, 3 in Edinburgh, and 2 in Ayr The deaths from measles, which had declined from 19 to 18 and 17 in the three preceding weeks, further fell to 7 last week and included 5 in Glasgow The fatal cases of diphtheria, which had been 5, 3, and 6 in the three preceding weeks were again 6 last week, 2 deaths occurred in Glasgow and 2 in Edinburgh The deaths from scarlet fever, which had been 5, 7, and 3 in the three preceding weeks, rose to 5 last week, and included 3 in Glasgow The fatal cases of whooping-cough, which had been 8, 8, and 3 in the three preceding weeks, were 4 last week, all 4 deaths were registered in Glasgow

The deaths referred to diseases of the respiratory system, which had been 64, 50, and 62 in the three preceding weeks, declined to 40 in the week under notice and were 6 below the number registered in the corresponding week of last year The deaths from violence numbered 32, against 16 and 22 in the two preceding weeks

HEALTH OF IRISH TOWNS

In the registration area of Dublin 193 births and 110 deaths were registered during the week ended Saturday, July 29th The annual rate of mortality, which had been 17 6, 18 8, and 15 2 per 1000 in the three preceding weeks fell to 14·4 per 1000 in the week under notice against 10·6 and 12·4 per 1000 in London and Glasgow respectively

Of the 110 deaths at all ages, 22 related to infants under 1 year and 25 to persons aged 65 years and upwards Four deaths of infants (under 2 years of age) were referred to diarrhœal diseases

The causes of 4 deaths were uncertified, and 4 others were the subject of coroners' inquests, while 49 or 45 per cent, of the total deaths occurred in public institutions

During the same period 155 births and 93 deaths were registered in the city of Belfast The deaths corresponded to an annual rate of 12 4 or 2 2 per 1000 less than in the previous week, and included 17 of infants under 1 year of age and 18 of persons aged 65 years and upwards One death was referred to measles and 1 each to scarlet fever, whooping-cough, and infantile diarrhœal diseases The cause of 1 death was uncertified and 4 others were the subject of coroners' inquests, 34 deaths occurred in public institutions

Obituary.

SIR WILLIAM HENRY POWER, K C B, F R S, F R C S Eng,

LATE PRINCIPAL MEDICAL OFFICER OF THE LOCAL GOVERNMENT BOARD

IT is with feelings of the deepest regret that we announce the death, in his 74th year, of Sir William H Power K C B, who died at his residence in East Molesey on July 28th.

Sir William Power had the distinction of belonging to an old medical family, and was the fifth representative of the profession in direct succession from father to son, beginning with John Power, a surgeon in Warwickshire born in 1737 He received his early education at University College School, after which he became apprenticed, as a medical student, to his father, Dr William Henry Power, of Ladywell, Kent Later he entered St Bartholomew's Hospital and qualified as a Member of the Royal College of Surgeons and as a Licentiate of the Society of Apothecaries in 1864 He devoted the next six years to the practice of clinical medicine and surgery, and held several important hospital appointments For some years he was resident medical officer to the Victoria Park Hospital for Diseases of the Chest, and here he acquired that intimate knowledge of pulmonary tuberculosis which proved so useful to him in his subsequent investigations of problems associated with that disease By a strange coincidence, Power commenced his life's work in the very year that the Local Government Board was created by joining the medical department, as a temporary medical inspector, in 1871 In that year the medical department of the Privy Council had been transferred to the newly formed Local Government Board, and comprised such well known men as John Simon, Seaton Buchanan, Thorne Netten Radcliffe, and Ballard With these distinguished men as colleagues Power commenced a public health career, which was destined to be fruitful in advancing our knowledge of all branches of preventive medicine and in evolving the organisation of the public health administration of this country The aims and objects of these pioneers were well expressed in the writings of Sir John Simon, who stated "I believe we had the credit of earnestly endeavouring to learn the truth and tell the truth, as to the matters which our inquiries regarded." Power was a real prophet and professor of truth He possessed in a remarkable degree the faculty of observation, doubtless first awakened by a love of natural history which remained with him a passion throughout his life, while his ability to weigh facts and adduce from them correct conclusions has rarely, if ever, been excelled by any worker in medical research. These rare gifts were applied by him in elucidating many problems connected with infectious diseases, the far reaching results of his work in this connexion being well known to every student of public health

Perhaps one of the most striking of Power s inquiries was that in relation to the part played by small pox hospitals in influencing the distribution of the disease in their neighbourhood He found that increased incidence of small pox in the surrounding districts followed the admission of acute cases into Fulham Hospital, and that if the surrounding area were divided into zones by means of circles drawn upon the map, with the hospital as a centre and a quarter, half three quarter and one mile radii respectively, the proportion of invaded houses to the total number of houses in each zone diminished as the distance from the hospital increased and that this relation held good in each quadrant of each zone The distribution of the cases was not such as to suggest any relation to lines of traffic to and from the hospital or to ambulance routes These remarkable facts formed the basis of the theory of aerial convection of small pox infection which was formulated by Power and led to results of great practical importance The small pox hospitals of the Metropolitan Asylums Board were formerly situated within, or in the outskirts of, London and were in most instances surrounded by thickly populated areas Power s statistics of small pox incidence in the registration districts of London during the years 1876–85 relatively to the operation of small pox hospitals in the metropolis proved that for whatever reason the local distribution and intensity of small pox during the epidemics which occurred in the period under review had been influenced in large measure by the

proximity or otherwise of the London small pox hospitals The figures demonstrated that there were instances in which the opening of such hospitals for the reception of acute cases of small pox in parts of London hitherto comparatively free from the disease had been followed by severe local outbreaks in the immediate neighbourhood of the hospitals Subsequently, as is well known, the use of these hospitals in London was abandoned, and all cases of small pox were removed to institutions situated outside the metropolis With the inauguration of this departure small pox ceased to prevail on anything like the scale recorded when the hospitals were within the metropolitan area

Power was the first to demonstrate that diphtheria could be spread through the agency of milk The facts on which this conclusion was based are contained in a report to the Local Government Board, dated December, 1878 on an epidemic prevalence of diphtheria in North London. He also showed that milk-borne scarlet fever was not in every case due to specific contamination of the milk from a human source, but that the cow was prone to a disease apparently of a similar character, and that consumption of the milk of such unhealthy animals was capable of producing scarlatinoform disease in the human subject This hypothesis was first suggested by Power in connexion with a scarlet fever outbreak investigated by him in St. Giles and St Pancras in 1882, and was definitely established by the circumstances of the classical outbreak in Marylebone and other London districts in 1885, which was associated with a farm at Hendon. An account of this outbreak appears in the fifteenth annual report of the medical officer of the Local Government Board, dated 1885 One of the most notable instances of Power s remarkable insight into natural phenomena was furnished by his pronouncement in regard to the causes which give rise to the ability possessed by certain waters of dissolving lead. After study of the subject generally he suggested that the inscrutable behaviour of soft moorland waters in regard to their plumbo-solvent action was probably due to low forms of organic life. Inquiry was then made into the matter on an extensive scale, by the medical department of the Local Government Board, when Power's hypothesis was abundantly proved, it being shown by Houston that the acidity of such waters and their consequent plumbo-solvent ability were due to the presence of acid producing bacteria in the peat of the gathering grounds from which such waters were derived The elucidation of this problem led to far reaching results, for when steps were taken to neutralise the acidity of these plumbo-solvent waters before delivery to the houses of the consumers, lead poisoning, due to dissolved lead in the drinking water, which had been very prevalent in certain of the industrial communities of the north, practically ceased, and is now rarely met with in this country

In 1887 Power was promoted from the rank of inspector to be assistant medical officer in which capacity he remained until the retirement in 1892 of Sir George Buchanan, when he became the first assistant medical officer Following upon the death of Sir Richard Thorne, he was appointed in 1900 Principal Medical Officer of the Board which office he retained until 1908, when he reached the official age for retiring from the Civil Service. It was while acting as assistant medical officer that he established those intimate personal relations with the medical staff which were largely responsible for the excellent work done by the department during the remainder of his tenure of office One of the most modest of men, with a physical dread of notoriety, he constantly kept in the background while helping others to attain success—not merely his colleagues at the Local Government Board, but also a large circle of friends who were in the habit of seeking his advice on a wide range of subjects associated with medical problems In directing the work of the medical inspectors his shrewd judgment of the capacities of each man on the staff enabled him to choose the inspector whose talents were most suited to any particular piece of work which had to be done, while his remarkable powers of intuition and constructive criticism combined with the kindliness of his personality rendered his influence widely felt. It is lamentable that no less than seven of the men whom Power trained as medical inspectors, and who so largely contributed during his time to the strength of his department, have predeceased him Apart from the three assistant medical officers, the present medical staff unfortunately includes only a few men who had the privilege of being associated with Power in the study of national problems of public health.

Power rightly considered that one of the best methods of securing sanitary reform throughout the country was by

SIR WILLIAM HENRY POWER, K C B,
LATE PRINCIPAL MEDICAL OFFICER TO THE LOCAL GOVERNMENT BOARD

(Reproduced from a Drawing in Water-colours)

drawing public attention, through official publications, to the conditions obtaining in insanitary districts, and a considerable portion of the time of the medical staff was, in his day, occupied in inquiring into the sanitary circumstances and administration of the more backward districts of England and Wales We cannot imagine a more valuable work by the central health authority than this, and, as a matter of fact, it led to material improvement in the health conditions of many parts of the country Sometimes it resulted in local reform, while in other instances the published reports came to form a mass of official evidence which acted as a strong impetus to general legislation or to better central administration in sanitary matters Another fundamental principle in Power s schemes of reform was to press on his department the necessity of improvement in the education and remuneration of sanitary inspectors These officers perhaps do not know how great a friend they have lost, for Power seldom told anyone of his accomplished work

Long before his appointment as assistant medical officer Power was entrusted with the important task of editing the reports appearing in the Annual Reports of the Medical Officer under the heading "Scientific Investigations," and this work he retained, as a labour of love, till the very last, notwithstanding the many and increasing duties which devolved upon him Many of the inquiries conducted by the Board's medical staff during Power's tenure of office led to the publication of official reports which formed standard works on the subjects with which they dealt—such as, for example, "The Influenza Epidemic of 1889-90," by Franklin Parsons, "Oyster Culture in Relation to Disease," by H T Bulstrode It was mainly through Power s efforts that in 1904 a foods department was established by the Local Government Board on lines which had been carefully thought out by him for a long time beforehand. The results which this new branch has achieved have more than justified the anticipations of its founder, more especially since the outbreak of the present war, during which it has rendered valuable services to the State

On the death of Sir Richard Thorne, Power was appointed a member of the Royal Commission on Sewage Disposal The scientific work of the experts employed by the Commission was, in great part, carried on under his direction and forms the basis of our present knowledge of the principles and practice of sewage disposal. He was closely associated with the work of the Royal Commission on Tuberculosis (Human and Bovine), while the late Sir Michael Foster was its chairman, and on his death was nominated to the chair of that Committee He acted for some years as the Crown nominee on the General Medical Council He was the recipient of the Jenner medal of the Epidemiological Society of London, the Bisset-Hawkins medal of the Royal College of Physicians, London, the Stewart prize of the British Medical Association, and the Buchanan medal of the Royal Society The value of his scientific work was recognised by his election as a Fellow of the Royal Society in 1895

In his early days Power was, as might be expected from his fine physique, an athlete, and gained some distinction as a cricketer He was also an adept in the use of the gun and found some relaxation in duck shooting during the few short absences which he allowed himself from official duty He was married early in his official career but lost his wife after only four years of married life He leaves two daughters

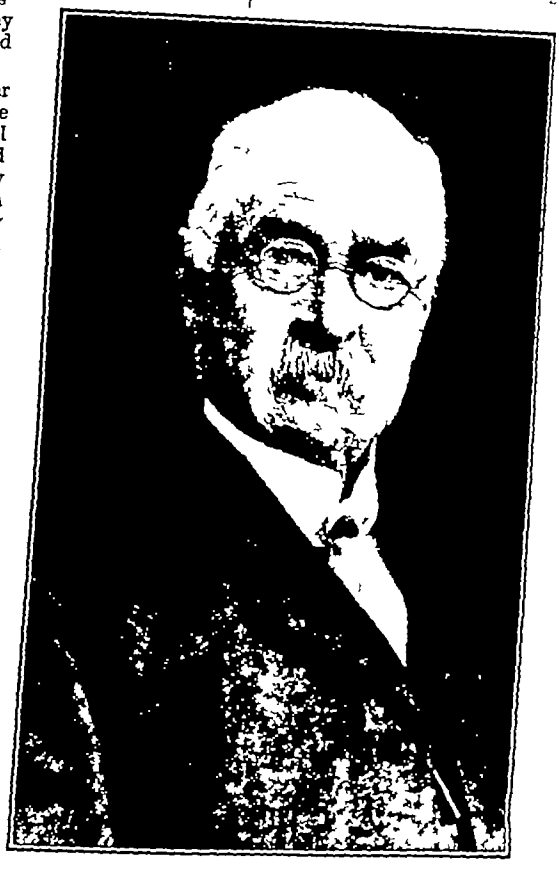
It is difficult to do justice to the memory of Sir William Power While respected by all and beloved by those who had the privilege of coming intimately in contact with him, it is probable that, owing to his retiring disposition, few have recognised, at its true value the importance of his achievements which were so silently accomplished. It was perhaps only among his own staff that the wide scope and effect of his work were fully known and appreciated Medicine, more than any other science has attracted from the earliest times men of outstanding ability and originality of thought, who have devoted their lives to study of the phenomena presented by the human subject in health and disease To few such men has nature yielded her secrets more abundantly than to Sir William Power, whose work in the cause of hygiene will ever be an inspiration to those who promote the welfare of their fellow creatures by helping to maintain and improve the public health

THOMAS JAMES WALKER M D LOND, F R C S ED

CONSULTING SURGEON TO THE PETERBOROUGH INFIRMARY

THE death of Dr T J Walker, of Peterborough, deprives the ranks of general practitioners of one of their oldest and most distinguished members

Thomas James Walker was born in 1835 at Peterborough, where his father was a well known medical man, he came of a strong stock for both his parents passed the age of 90 He was educated at the University of Edinburgh, was a demonstrator of anatomy to Goodsir, and graduated at the University of London, carrying off the University gold medal in physiology at the first M B examination and that for medicine at the final examination in 1857 After graduating he was appointed medical tutor at Queen's College,



THOMAS JAMES WALKER M D Lond

Birmingham, which had just been founded, and was subsequently elected assistant physician to the Queen's Hospital He was urged to practise in Birmingham as an obstetric physician, but he felt it his duty to join his father in general practice Before doing so he went to Vienna for six months, and there he was especially attracted by laryngology Czermak having just demonstrated the clinical value of the laryngoscope Walker s interest in this subject never flagged In THE LANCET of Nov 9th 1861 he published the first case in England, in which a laryngeal polypus was removed 20 years later at the International Medical Congress in London in 1881 he was one of the secretaries of the Section of Laryngology, and the last paper he wrote in 1913, was entitled "A Retrospect of Laryngology 1860-1910" But when he entered on a busy general practice his tastes grew catholic and he became the rare example of a first rate all round man

For 54 years he spent an extremely busy life and took few holidays In 1862 he was appointed surgeon to the Peterborough Infirmary and held that office for 42 years seeing in and out-patients with the utmost regularity and although there were only a few beds he utilised his opportunities to the utmost He was always on the look out for new methods and fresh ideas, he was a successful ovariotomist in the early days of that operation, and was one of

the first in this country to perform gastro jejunostomy successfully He adopted Listerian methods when they were introduced and had the operating theatre of the infirmary reconstructed that he might adapt his methods to the teachings of the aseptic school He was a neat and successful operator and was a particularly dexterous lithotomist at the time when vesical calculus was a common complaint in the Eastern counties—a local feature which seems to be disappearing His reputation spread rapidly, and his services as an operator and his advice in consultation were sought by colleagues over a wide area He had little leisure for literary work beyond the narration of interesting single cases in the journals, two papers, however, which broke new ground ought to be mentioned In the Transactions of the Royal Medical and Chirurgical Society for 1889 he published a paper on Colourless or Clay coloured Stools Unaccompanied by Jaundice, connected with Disease of the Pancreas, which proved the undisputed part played by the pancreas in the colouration of the stools In 1905 he published in the Clinical Transactions a series of cases of Acute Ascending Paralysis in Patients Suffering from Chronic Cystitis He also wrote the articles on Diseases of the Larynx in the first edition of Quain s "Dictionary of Medicine" When the Royal Society of Medicine was founded he was one of the first members of council, and he was more than once elected President of local branches of the British Medical Association for his high position in his own district was not due to his professional attainments alone. His character and his high ideals earned him universal respect while his firm, kindly manner and his considerate thoughtfulness endeared him to all his patients Rich and poor alike knew that he took a real personal interest in them, and many of them would seek his advice in circumstances of difficulty which had no relation to medicine

Amid the heavy calls of practice Dr Walker cultivated other interests A learned archæologist, he formed a valuable collection of Saxon and Roman remains, found near Peterborough and bequeathed them to the city He recently spent most of his scanty leisure in researches, both locally and at the Public Record Office, into the history of French prisoners of war in Napoleonic times a large detention camp having existed for some years at Norman Cross, near Peterborough These researches were embodied in a book, "The Depôt for Prisoners of War at Norman Cross, Huntingdonshire 1796–1816" which is of interest at the present time, as its pages show by contrast how much more humane are the methods now adopted in this country in dealing with prisoners of war He was an enthusiastic Volunteer in the early days of the movement, went to camp every year with his battalion, and ultimately became lieutenant-colonel and received the V D It is interesting to note that six of his sons are serving in the Navy or Army in the present war He threw himself energetically into all local schemes for social improvement and was a sober advocate of temperance He was a good rider and keen sportsman On his eightieth birthday his city honoured him by making him an honorary freeman and a few months later his portrait was presented to him by public subscription.

Until recently there was no abatement of his energy, and in spite of his years he did a day s work which would have tried much younger men But in the last 18 months troubles came quickly upon him His wife died after 50 years of happy married life and a few months later Dr George Kirkwood his partner and close friend for 40 years also died These blows told on his strength In June he had a severe feverish attack, which compelled him to take to his bed His strength failed rapidly, and he died on July 19th Thirteen children survive him of whom four have adopted their father s profession—Dr Walter Walker Dr Alec Walker, and Captain J Walker, R A M C (T) (who were in partnership with him), and Captain Russell Walker, R A M C

BUSHELL ANNINGSON B A, M D CAMB

LECTURER ON MEDICAL JURISPRUDENCE AT THE UNIVERSITY OF CAMBRIDGE.

WITH Dr Bushell Anningson has passed away, at the advanced age of 78 years a well known figure in Cambridge and one associated with the public health administration of the neighbouring districts over a period of 40 years

Bushell Anningson came of a Lincolnshire family and was born at Idle in Yorkshire His father was in medical practice in London and wished his son to follow in his own profession, sending him to Gonville and Caius College, Cambridge, in 1865 Anningson early showed his aptitude for his studies, gaining two scholarships when an undergraduate and taking honours in the Natural Science Tripos He passed his M B in 1869, taking the M D degree in 1877 with a thesis upon the Infective Constituents of Vaccine Lymph In the meantime he was demonstrator to Sir George Humphry, then professor of surgery In 1875 Anningson obtained his first public health appointment under the Cambridge Improvement Commissioners, and this was the commencement of a series of appointments which ultimately brought under his administration an area exceeding 500 square miles Most of the sanitary and preventive measures now in operation in the borough of Cambridge were initiated by him notably the Infectious Diseases Hospital and the sewage works Although fully occupied in administrative work, Anningson held with distinction teaching appointments in the University of Cambridge He was lecturer on medical jurisprudence, and one of the earliest teachers of sanitary science in the country The establishment of the Diploma of Public Health was one of the products of his activity His merits were recognised by public bodies in this and other countries He was University delegate at the Hygienic Congress at Budapest in 1894 and at Madrid in 1898, he was an associate of King's College, London, and of the Société d Hygiène of France, and a member of the council of the Royal Sanitary Institute Anningson was an indefatigable worker, and it was in the midst of his strenuous work that he died He contributed articles to many journals, and of other works published by him we may mention the "Evolution of Human Communities in Relation to Disease" and the "Origin and Progress of Sanitary Endeavour"

In 1888 Dr Anningson married the only daughter of Mr Samuel Davy, of Christchurch who survives him

THE LATE DR W W H TATE

IN reference to the obituary notice of Dr Tate, which appeared in our last week's issue, Dr Herbert Spencer writes —"I knew Walter Tate well for more than 30 years He obtained his first resident appointment at University College Hospital in 1888, a few months after I was elected to the staff, and afterwards he became house physician and resident medical officer to the hospital, in all these appointments he was assiduous in the performance of his duties and most popular with patients, nurses, students, and staff Ever since those days, in which he laid the foundation of a successful gynæcological career in a wide general training I have watched his work with admiration and maintained an unbroken and unclouded friendship, which, cut short by the hand of death leaves a feeling of sadness and grief, assuaged by the sweet memory of a man of high principles and honour, a charming personality, and one of the best and most unselfish men I ever knew Appointed to St Thomas's Hospital, and succeeding Dr Cullingworth at an early age, Walter Tate soon acquired an extensive experience in gynæcology, in which he was a skilful and successful operator, and made many valuable contributions to literature. He was devoted to his hospital work and took much pains in teaching the students with whom he was very popular Equally devoted to him were his private patients of all ranks, who could not fail to appreciate his kindness, geniality, sound judgment, honesty and skill Bold in performing necessary operations, he was averse from performing those which his experience, judgment, and humanity led him to know to be of doubtful utility Though devoted to no 'sport,' Walter Tate had in an unusual degree the faculty of warming both hands at the fires of life, work and play, in both of which he took great pleasure. His 'play' of late years took the form of motor trips through many parts of England and in social meetings with his friends Some of his excellent professional work is recorded in transactions and journals, the memory of his genial, cheerful, charming, and sterling personality will ever remain enshrined in the hearts of his friends"

KING S COLLEGE HOSPITAL MEDICAL SCHOOL (UNIVERSITY OF LONDON)—The Burney Yeo scholarships for 1916 have been awarded to Robert Roberts B A, Balliol College, Oxford, J Myles Bickerton B.A, Pembroke College, Cambridge and Geoffrey Arthur Harrison, B.A, Gonville and Caius College, Cambridge

Correspondence.

"Audi alteram partem.

THE WORK OF THE REGISTERED HOSPITALS FOR THE INSANE

To the Editor of THE LANCET

SIR,—I have read with great interest Dr Henry Rayner's protest against the small amount of charitable work done by some of the registered mental hospitals in England I think he will agree that this has for a long time been well known to all engaged in consultative work in mental medicine, and I was disappointed in noting his definite statement that the Board of Control had no power to compel some of these institutions to live up to the purpose for which they were originally licensed We know well those institutions which are doing true charitable work, in spite of not being able to make their actual earnings meet their yearly expenditure, but we also know the difficulties we often experience in our attempts to get deserving cases taken into some registered hospitals at a small weekly payment The poor middle class mental patients have of late years been able to gain admission to many of our rate supported asylums at a minimum charge of £1 1s to £1 5s a week, and we have in the many cases coming to us welcomed this help I fear, however, even in the case of some of these public asylums there has developed a tendency to build palatial annexes out of the ratepayers' money and enter into competition with private institutions with large amounts of capital invested I only heard the other day from a very reliable source of one such public asylum receiving patients paying very high terms, and I know that to get a deserving case into this institution at a small weekly payment is often not at all an easy thing to do I believe I am stating a fact when I say that many of the private asylums of this country do more real charitable work than those institutions which were given a licence on the specific understanding that their profits should be utilised to help those who could not afford more than a small weekly sum

The great fact that must be continually brought forward in all these discussions is that, according to the reports of the Commissioners in Lunacy, the recovery rate of mental diseases is to-day no higher than it was in the "seventies" of the last century The ever increasing difficulty in getting mental cases with small means quickly under skilled care must, I feel sure, account to a great extent for this lamentable fact

If the Board of Control have no existing powers to remedy this evil, surely it would not be difficult to get a small Act passed enabling them to have more real authority over these institutions I am Sir, yours faithfully,

L A WEATHERLY, M D Aberd

Bournemouth July 29th, 1916

AORTIC INCOMPETENCE, DIGITALIS, AND THE WAR-WORTHY HEART

To the Editor of THE LANCET

SIR —So long ago as 1829 Hodgkin concluded from his own experience,[1] that neither blood letting nor digitalis was advisable in cases of "retroversion of the aortic valves" Corrigan, with whose name aortic incompetence is frequently associated, contrasted aortic with mitral lesions, and regarded digitalis as dangerous in cases of "inadequacy of the aortic valves"[2] In all subsequent discussion on this point there has been that defence of and objection to, the use of digitalis in aortic incompetence which denotes a theme marked by uncertainty based on experience Perhaps the most satisfactory and tersely expressed opinion on the subject is that of the late Sir William Broadbent when he states[3] that digitalis is only useful in cases of aortic regurgitation manifesting 'mitral symptoms'—in other words when the power of the ventricle to fulfil its functions efficiently has waned That digitalis under any circumstances is only indicated when cardiac force has ceased to be equal to propulsive need will scarcely be questioned Dr Seymour Taylor, in his interesting paper in THE LANCET of July 15th, arrives at a sound conclusion when he writes of the "seriousness of aortic regurgitation," and you also echo in the leading article on Aortic Incompetence in your issue of July 22 a similar opinion, and one which would scarcely have required restatement had not some of recent years, with altogether unjustifiable emphasis, relegated to the limbo of childish conceptions that importance of the mechanical factor in the circulation represented by the valvular apparatus

I agree with Dr Taylor that clinical experience is at least as valuable as laboratory research, but the two, on the whole are very helpful to one another although the physiologist sometimes claims a degree of authority in practical medicine which the physician cannot concede A laboratory study of the development of the heart is, however, very enlightening both as to the value of the valvular apparatus in maintaining the circulation and in sparing the work of the heart The valves develop late, they are the finishing touch given to the cardiac mechanism Prior to the completion of the aortic valves the circulation is not steadily progressive but oscillatory, to and fro, see saw, and this in proportion to the slowness of cardiac action It is less oscillatory when the circulation is quickened, and more so when it is slowed There is, indeed, no more perfect picture of Corrigan's pulse than that seen in the developing heart before the aortic valves are competent

Experimental physiology teaches the same lesson Marey and Chauveau[4] showed by experiment on the horse that destruction of the aortic valves caused a rise both of intraventricular pressure and heart rate, while Corrigan noted[5] what we know to be true of the otherwise normal heart affected with aortic valvular disease—namely, that the heart rate has a high average Corrigan placed it at 110 beats a minute As the effect of digitalis is not only to increase muscular tone, but to lower cardiac rate it finds a useful place only when the power of the heart is diminished and its rate very considerably increased, so much increased that its reduction to 100 or so a minute may be regarded as low In a paper on the Treatment of Aortic Valvular Disease,[6] I endeavoured to show that lesions requiring increased propulsion, of which aortic incompetency is the best example need acceleration in action, while those requiring increased aspiration demanded cardiac retardation. While atropin in small doses is the best cardiac accelerant, digitalis is without doubt the best retardant, and may have to be pushed boldly even in aortic incompetence when the heart has failed

As regards prognosis and work capacity in aortic valvular disease on which, as on many other points in Dr Taylor's paper it is not possible to dwell here, much depends upon two factors (1) the etiology of the condition and (2) the character and amount of the lesion As regards the first point, an aortic incompetence due to specific disease with a concurrent obliterative endarteritis which may be often assumed to exist, is, even in a young subject of graver prognosis than the same condition arising from rheumatic valvulitis or senile change unless the cardio motor (nodal) mechanism be involved. With reference to the amount of lesion, Dr Taylor writes of one of his cases of aortic regurgitation as showing "accentuation and reduplication of the second sound over the pulmonary artery"[7] Inasmuch as the second sound is due to the closure of the sigmoid cusps of both the pulmonary artery and the aorta and its reduplication to asynchronous closure of these valves, it is manifest that both valves must have been fairly competent to have yielded the reduplication noted But the estimation of the amount of valvular lesion is admittedly a difficult matter, yet it should be attempted unless we adopt the attitude of the cult which regards the valvular state as negligible This particular heresy, however promises to be short-lived, and your leading article correctly asserts that "the victim of aortic incompetence must be rigidly excluded from the Army" To this it may be added with equal emphasis that the bearer of any organic valvular lesion whatever should also be excluded I have personally had to advise the exclusion from the Army of

[1] London Medical Gazette vol iii p 442.
[2] Edin Med and Surg Jour April 1st, 1832.
[3] Heart Disease, p. 117

[4] Circ. d Sang pp 674-75
[5] Loc cit
[6] Brit Med Jour, March 14th 1896
[7] Loc cit p 97

victims" of valvular disease considered war worthy by ome disciples of the cult in question

I may refer, in conclusion, to the perplexities of your orrespondent, Captain Adolphe Abrahams, whose letter ppeared in THE LANCET of July 29th, induced by a study of aptain John Parkinson's paper in your issue of July 22nd, ie carefully collected and well weighed data in which render valuable His suggestion of an objectively flawless ut essentially inadequate heart is quite in accordance with robability Some years ago I contributed an article to HE LANCET[8] on Cardiac Inadequacy, borrowing the term rom an expression used by the late Sir Andrew Clark n discussing "renal inadequacy" In the paper referred to examined the question of cardiac inadequacy rather fully hat there is a native difference in organic adequacy will carcely be disputed, and I agree with Captain Parkinson hat only a moiety of the more or less rapid and easily ccelerable hearts met with in so-called "soldier's heart" re referable to hyperthyroidism Sir James Barr s conten ion that cases of hyperthyroidism without pronounced nlargement of the gland are overlooked is, however, robably correct

That defective endocrinic tone plays a part in these cases s probable and is shown by the lack of sustained energy in ardiac action. This loss of tone appears to me to be of eural origin and the determination of what I have termed he cardio-pulmonary reflex is, I believe a valuable index to he power of adaptation shown by the heart under exertion An easily elicited retardation of the heart while unaccele rated, on deep respiration and a rapid return to the normal rate on the cessation of exertion, I have been taught by experience to regard as indicative of that control which denotes good cardio vascular tone I therefore find myself quite in accord with Captain Abrahams in ascribing importance to undue prolongation of acceleration after a given work test, and have myself employed it as such and have advised others to do so also On the other hand, a native cardiac inadequacy without any evidence of organic or persistent disease may quite validly exclude a man from military service

There can also be little doubt as Captain Abrahams suggests, and it has before been pointed out, that there is a considerable psychical element in many cases of so called "soldier s heart" The conditions of modern war are even more calculated to induce the neurasthenic state and bring such tendencies into activity than the conditions of previous wars The frequent night attacks and high explosives denoting as they do banished sleep and excessive stimula tion, are well calculated to produce shock and disorder, especially although by no means exclusively in more highly strung individuals The cord tends to vibrate long after it has been struck, and to emit frequently a music far from exhilarating For this reason the aggregation of neurasthenic cardiopaths in a special Cordarium such as that which has recently been established at Hampstead, has always appeared to me to be wrong in principle. Such cases can be as well investigated and, I believe, more successfully treated outside an emphasised cardiopathic atmosphere

I am, Sir yours faithfully

ALEXANDER MORISON

Upper Berkeley-street, W July 29th 1916

THE SHOCKLESS OPERATION

To the Editor of THE LANCET

SIR,—I was much interested to read Dr Manson Fergusson's letter in your issue of July 15th in answer to my article on this subject I notice that Dr Fergusson prefers local anæsthesia with the patient fully conscious to the method advocated in my paper While this may be an advantage when operating upon hardy Scotch patients and when a skilled anæsthetist is not easily obtainable it is not generally speaking, I think, as good a method as that in which the patient is kept unconscious Very many patients cannot face with equanimity a long operation upon them selves even when pain is entirely absent, and they are liable as the result of fright alone to become faint and collapsed either during, or soon after the operation As most second year students and nurses know from personal experience it is no slight ordeal to be present at a long operation even when the subject is someone else How much more difficult when the subject is oneself! As Dr Crile has pointed out, a considerable degree of shock may occur from mental anxiety alone, and it is our duty to protect the patient from this as far as possible

Dr Fergusson is alarmed at the possibility of the patient's struggling during an abdominal operation, but this should never occur with gas and oxygen if a good anæsthetist is available, and I personally have had no experience of it The method is, of course still rather new to many anæs thetists, but I feel confident that great improvements in the production of analgesia with gas and oxygen will occur as the result of increased experience with the method In America gas and oxygen as a general anæsthetic is being extensively used and is increasing in popularity, and I feel certain that the same will occur in this country, especially in London, where specialism in the administration of anæsthetics has reached its greatest development

I am glad that Dr Fergusson has drawn attention to the possible danger from chloroform and adrenalin in associa tion I have personally never seen any bad results from the combination, but this is probably because I have used only very dilute solutions of adrenalin and very small quantities of $CHCl_3$ I believe, however, that Dr Fergusson is correct and that $CHCl_3$ should not be given when adrenalin is to be used, as there have been, to my knowledge, one or two deaths which might be attributed to this cause

I am Sir, yours faithfully,

London July 26th 1916 P LOCKHART MUMMERY, F R C S

DIGITALIS IN AORTIC INCOMPETENCE

To the Editor of THE LANCET

SIR,—Dr Seymour Taylor s article on the above subject in your issue of July 15th prompts me to record the following case of aortic regurgitation treated with tincture of digitalis

A man, about 40 years old, was admitted to hospital on account of dyspnœa and œdema of the legs This condition was due to morbus cordis, and the presence of aortic regurgi tation was evident by the usual signs There was evidence of the disease being syphilitic He was put to bed on a restricted diet Some inconsiderable improvement followed Digitalis was given with caution Very definite improve ment followed its use This observation was controlled by a careful record of the daily output of urine The following figures were obtained —

Successive periods	Duration in days	Daily amount digitalis given in minims	Daily average excretion of urine
1	8	None	740 c c
2	10	15	980 ,,
3	6	None	660 ,,
4	9	22½	1050 ,,
5	12	22½	1070 ,,

The effect of the drug on the output of urine was apparent 48 hours after its first administration, and the above periods are taken accordingly

This case illustrates one of the events which may follow the administration of digitalis and it is little more trouble to record than the pulse rate When the case presents definite clinical evidence such as this, of the immediate value of digitalis in aortic incompetence one awaits comprehensive statistics, proving its effect in shortening life, before passing adverse judgment on its value

I am, Sir, yours faithfully,

July 15th 1916 GEOFFREY EVANS, Temporary Surgeon R.N

MEDICAL ELECTRICITY DIRECT FROM THE MAIN

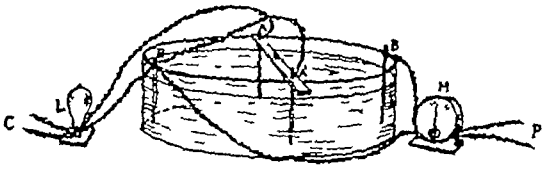
To the Editor of THE LANCET

SIR,—In THE LANCET of June 10th, p 1176, a device is described for safely utilising the current from the main for medical purposes by interposing a water resistance It claims to be something new, but is not water not only one of the best, but one of the oldest forms of resistance for galvanism? It has always been used by electrical engineers, and Professor Leduc—in whose laboratories I first saw it—has always worked very largely with it. The experiments in his book (which was published many years ago and which is now the classic on ionic medication) were worked out entirely with water resistances Since the

[8] THE LANCET vol. i 1902, p 1098

beginning of the war he has been supervising the electrical work in the 100 hospitals of the Loire military district, and the object of this note is to mention his method, because it is different from British methods

The apparatus in his research laboratory cost him, as he said, "nothing" Anyone who happens to have by them a glass bowl, some bits of carbon and of wire, a lamp, and a spare milliampèremeter, can make one for the same, by arranging them thus —



The current from the main (C) is taken through a lamp (L) for safety—or 2 lamps Then to the cylindrical bowl of water (about 6-8 inches × 10-18 inches) and led to 2 carbons A A' which are on a movable wooden rod At the position in the diagram nothing passes to the patient—but as A A' is moved round towards carbons B B' (which are fixed immovable to the sides of the bowl) the resistance is of course, diminished, and the current may thus be regulated for the patient (P), the quantity being read off on the milliampèremetre (M)

As there are so many thousands of cases now needing ionic medication it is an advantage to be able to give multiple doses simultaneously In the Loire district it is a favourite plan to have four patients seated or reclining round a table about 4 feet square, for which some wounded carpenter has made a double top, with a space of about 7 or 8 inches in between. Four glass bowls of similar depth are set upon the lower shelf Four circles are cut out of the upper shelf over them These act as lids, and also can be twisted round to carry the movable carbons The current enters the under shelf, and as nearly all war wounds do better with a current that is interrupted, it is passed through a metronome which is fixed on the middle of the top shelf. From here it is divided up and passes to the four separate resistances for the four separate patients

As a practising electrician who has for the past 14 years treated all wounds (excepting those of viscera) from the earliest possible moment after infliction with static and galvanic electricity, I would consider some such apparatus as the above one of the absolute essentials in the best treatment of any wound

I am, Sir, yours faithfully,

London July 10th 1916 ETTIE SAYER

MOUTH HYGIENE IN THE ARMY

To the Editor of THE LANCET

SIR,—During the month of February, 1916 I kept a careful record of the condition of the teeth and gums of nearly all the cases admitted into my field ambulance Those cases, of which no record was kept, were either severely wounded or cases which were rapidly evacuated to the casualty clearing station, owing to their serious condition This meant that those cases whose mouths and teeth were possibly in a bad condition due to serious illness were eliminated from any calculation The following is the result of the notes which I kept —

(a) Number of men admitted whose teeth showed no signs of having been cleaned	279
(b) Number of men admitted with illness which might have been either caused or aggravated by the very foul and septic condition of their teeth and gums	66
(c) Number of men admitted whose teeth showed signs of being brushed fairly regularly	76
(d) Number of cases of which no record of the condition of teeth was made	61

For the first half of this month, when the above records were taken, the troops were out of action, in rest well behind the firing line, and were where they had ample supplies of water For the latter half of the month the division was in action, where possibly water was not so plentiful, but the records for the two periods show a smaller number of cases admitted under (b) heading during the latter period, when they were in action, and the supply of water was less plentiful So 66 cases came into one field ambulance with symptoms which, in the opinion of the medical officers in charge of the cases, and in my opinion were due to the neglected state of their teeth If to avoid the risk of overstating the case we say that only in 50 of these cases was the condition due to the foul neglected state of their teeth and gums, it can be estimated that scores of thousands every month are admitted into field ambulances with symptoms due to neglect of mouth hygiene

The R A M C has done wonders in this war in keeping down the admission rate of serious diseases, and even a liberal number of dentists are being provided to look after the men's teeth, but it appears to me that the subject has to a large extent been overlooked, possibly because at first sight it may not seem of great importance, and secondly because, no doubt, it is not a congenial task for regimental officers to examine their men's teeth, but in my opinion they should have the necessity for doing this pointed out to them in the strongest possible manner, and neglect should be visited with serious penalties

The above figures would be more strikingly in favour of my argument but for the fact that I was instrumental in having the following order published in the 19th Division Routine Orders on Feb 3rd, 1916 —

D R O 107 3rd February 1916 Discipline

A large amount of the sickness in the Division is due to the fact that the cleanliness of the teeth is very largely neglected resulting in such ailments as dyspepsia, gastritis rheumatism general debility and even symptoms resembling influenza. Commanding officers and more especially company officers should see that every man is in possession of a tooth brush and that this is used for its legitimate purpose, and D O s i/c units should impress upon all concerned the importance of the hygiene of the mouth

I am, Sir, yours faithfully,

G J STONEY ARCHER,
Lieutenant-Colonel R.A.M C

WALKER-GORDON LABORATORIES A TEMPORARY SUSPENSION OF WORK

To the Editor of THE LANCET

SIR,—Will you permit us to inform the members of the medical profession that owing to the conditions now existing we find it no longer possible to carry out the methods and arrangements which constitute the essence of this business, and we are obliged, therefore, with the greatest regret, to close down until the termination of the war We are, Sir, yours faithfully,

WALKER GORDON LABORATORIES, LIMITED

Weymouth street, July 31st, 1916

SOCIETY FOR THE STATE REGISTRATION OF TRAINED NURSES —At the last meeting of the executive committee of this society Mrs Bedford Fenwick, the President, proposed a motion recording the profound sorrow of the society at the irreparable loss sustained by the death on active service in Mesopotamia of its distinguished Vice President, Colonel Sir Victor Horsley, C B, F R C S I R S LL D" The motion was carried in silence, the members standing

DONATIONS AND BEQUESTS —By the will of the late Mr J Plews the Merthyr Tydfil General Hospital will receive £500 —The late Mr Salomon Stern has bequeathed £500 to the London Hospital, King Edward's Hospital Fund —Under the will of the late Sir Michael Barker Nairn, Bart, bequests of £6000 have been left to the Kirkcaldy Hospital £2000 equally between the Cupar Victoria Nursing Association, the Ladybank Victoria Nursing Association the Letham Nursing Association, and the assistance of nursing in the villages of Springfield and Pitlessie, £1000 to the Dysart Victoria Nurses Endowment Fund, £2500 for the endowment fund of Kirkcaldy Victoria Nurses, and £500 to the Cupar Cottage Hospital for the endowment fund —Subject to her sister's life interest the late Miss Mary Hadley of Smethwick, has bequeathed £500 each to the General Hospital, Birmingham the Queen's Hospital Birmingham the Birmingham and Midland Free Hospital for Sick Children, the Birmingham and Midland Hospital for Women, the Birmingham and Midland Eye Hospital the Birmingham Lying in Charity, the Birmingham and Midland Ear and Throat Hospital, the Midland Counties Home for Incurables, Leamington, and the Society for the Prevention of Cruelty to Children and £800 each to the Institute for the Deaf and Dumb Children Birmingham and the General Institute for the Blind, Birmingham

The War.

THE CASUALTY LIST

THE following names of medical officers appear among the casualties announced since our last issue —

Killed

Captain A. M. Thomson, R.A.M C, attached to the Royal Sussex Regiment, was educated at the Royal University, Belfast, qualifying in 1909 He was in practice at Belfast prior to joining the R.A M C, shortly after the outbreak of war

Died

Lieutenant-Colonel A. H Lister, C M G R A.M C, 19th General Hospital, Alexandria was educated at Marlborough and Cambridge and qualified at Aberdeen University He was a specialist in tuberculosis, practising in Aberdeen in which city he held many appointments

Captain H R Robertson R A.M.C attached to the Essex Yeomanry graduated M D Dublin in 1895, and was in practice at Tientsin China, for some years He joined the R.A.M C soon after the outbreak of war.

Captain W Hillbrook, British East African Expeditionary Force was educated at Cambridge and at St George's Hospital, London, and qualified in 1915 He proceeded to Uganda, taking a post at the Mengo Hospital, and subsequently accepted a commission in the Expeditionary Force

Wounded

Captain J M Stenhouse R.A.M C, attached to the Royal Field Artillery
Captain J Granger, South African Medical Corps
Captain S Liebson, South African Medical Corps
Captain T Sheehan R.A.M.C
Captain J D Wilkinson, R A.M.C, attached to the Royal Field Artillery
Captain W J Henry, R A.M C, attached to the Wilts Regiment.
Captain A. T Nankivell, R.A.M C attached to the Argyll and Sutherland Highlanders
Lieutenant E F Nivin, R.A M C
Captain W D Chambers, R.A M C attached to the Gloucester Regiment
Captain A. Grant R A.M C attached to the Royal Fusiliers
Lieutenant H B Maxwell, R.A.M C, attached to the London Regiment
Captain A. F Palmer, R A.M.C attached to the Royal Field Artillery
Lieutenant A. L Anderson, R A.M.C attached to the Royal Warwick Regiment
Captain R Lawson R.A M C
Captain R H Lucas R A.M C, attached to the Royal Fusiliers
Captain J A. Macleod R.A.M.C
Captain J H. H. Pearson, R.A.M C., attached to the Royal Lancaster Regiment
Captain D Pottinger R A.M.C
Captain S Brown, R.A.M C attached to to the Royal Field Artillery
Captain H. E O Brien R A.M.C
Captain R Park R A.M C, attached to the Royal Field Artillery

Previously reported Believed to have been taken Prisoners at Kut-el-Amara now reported Prisoners

Captain L A. P Anderson I.M S
Major C H. Barber, I.M S
Colonel P Hehir C B, I.M S
Captain H H King, I.M.S

Believed taken Prisoner at Kut-el-Amara

Major S Bose I M S

DEATHS AMONG THE SONS OF MEDICAL MEN

The following sons of medical men must be added to our lists of those who have fallen during the war —

Second Lieutenant M Heyward Dorset Regiment son of Dr H Heyward, of Croydon
Private H. D Johnson Somerset Light Infantry third son of the late Dr P P Johnson of Yatton Somerset
Lieutenant W Hall South Staffordshire Regiment, son of Dr W Hall, of Hodnet Salop
Lieutenant J L Whitty, Leinster Regiment, attached to the Royal Flying Corps, third son of Lieutenant Colonel M J Whitty, R A M.C
Second Lieutenant A J Bullivant Sherwood Foresters, younger son of the late Dr S Bullivant, of Mansfield, Notts
Second Lieutenant A G Chambers Middlesex Regiment, fourth son of the late Dr A B Chambers, of Long Eaton, Notts
Second Lieutenant W K. Sanderson Border Regiment, only surviving son of the late Dr T D Sanderson, of Fairfield, Penrith
Captain W T V Gripper, East Surrey Regiment, eldest son of Dr W Gripper, of Wallington, Surrey
Lieutenant and Assistant Adjutant H B Murray Argyll and Sutherland Highlanders fifth son of the late Dr W B Murray, of Tenbury, Worcestershire
Lieutenant H B Fisher, Northumberland Fusiliers younger son of Dr G E Fisher, of Skipton, Yorks
Captain J A. Ritson, South Lancashire Regiment, only child of Major R Ritson R A.M C, of Reading
Captain G B Donaldson Royal Warwickshire Regiment only child of the late Dr E Donaldson of Londonderry
Captain W F G Willes, Dorsetshire Regiment, eldest son of Mr W Willes M R C S, &c, of Bournemouth
Second Lieutenant C O'C McSwiny, King's Shropshire Light Infantry, younger son of Dr M O'C Swiny, of Okehampton, Devon
Second Lieutenant E R Ratcliff Gaylard, Duke of Cornwall's Light Infantry, only surviving son of Dr J Ratcliff-Gaylard, of Birkenhead
Second Lieutenant N Compton Burnett, Leicestershire Regiment, son of the late Dr J Compton Burnett, of Finsbury, London
Lieutenant and Adjutant N C Clery, Royal Field Artillery, younger son of Surgeon General Clery, C B, of Blackheath, Surrey
Lieutenant C P Cæsar, Shropshire Light Infantry, son of the late Dr C A Cæsar, of Hatfield, Herts
Lieutenant A. C Holland, Bedfordshire Regiment youngest son of Dr J F R Holland, H.B M. Consul, St Moritz, Switzerland
Captain W V T Gripper, East Surrey Regiment, eldest son of Dr W Gripper, Wallington, Surrey
Lieutenant A. W Sewill, West Yorks Regiment, elder twin son of Mr H E Sewill, M R C S, &c, of Earlswood Common, Redhill, Surrey

OBITUARY OF THE WAR

ARTHUR HUGH LISTER B A. CAMB M D C M ABERD,

LIEUTENANT-COLONEL, ROYAL ARMY MEDICAL CORPS

Lieutenant-Colonel A. H. Lister who died on July 17th at the age of 51 was the son of the late Arthur Lister, F R S, and a nephew of the late Lord Lister He was educated at Marlborough and Trinity College, Cambridge, and graduated in medicine at Aberdeen University in 1895 taking his M D degree with honours in 1904 After a period of post-graduate study in London during which he was house physician at the Middlesex Hospital, he settled in Aberdeen where in addition to the claims of a considerable consulting practice, he filled with distinction a number of important posts He was at various times honorary physician to the tuberculosis wards at the Aberdeen City Hospital medical officer to the Morningfield Hospital for Incurables, and honorary medical referee to the Newhills Sanatorium. His chief work, however was at the Aberdeen Royal Infirmary, to which he was attached for many years, being at the time of his death full physician and lecturer on clinical medicine at Aberdeen University In the latter capacity his power and lucidity as a teacher were much appreciated by the

students Shortly after the outbreak of war he went to France to take charge of the medical side of the hospital unit at Wimereux, and later, in April, 1915, he was given the medical charge of the 19th General Hospital at Alexandria, where he devoted himself to the duties of his position with characteristic energy and enthusiasm In recognition of his services he obtained a short time before his death the distinction of C M G The strain of a second summer's work under the trying conditions of Alexandria proved too much for his health and led to the recurrence of an old pulmonary tuberculous lesion, for which he had undergone a long course of treatment with satisfactory result a few years previously The disease made rapid progress and he died at sea while on the voyage home

One of his contemporaries writes of him "Lister was a physician of unusual ability, a good teacher, and a man of singular charm and nobility of character To his patients he was as much friend as physician He regarded his life and energy as a trust to be spent, heedless of himself, in the interests of others, and to the strain involved in his untiring devotion to this ideal is largely to be attributed his premature death" The truth of this verdict will be recognised by all who knew Colonel Lister His loss leaves the medical profession the poorer and a gap hard to fill in the wide circle of his friends Colonel Lister married in 1896 Sybil, daughter of the late Sir Reginald Palgrave, K C B, Clerk to the House of Commons, who survives him, with a family of seven children

---

EDWARD AUGUSTINE BELL, M B, B S LOND,

CAPTAIN, ROYAL ARMY MEDICAL CORPS

Captain E A Bell, who was accidentally drowned whilst on active service in France on July 11th at the age of 38, was the fourth son of the late William Bell, M R C S, J P, of New Brighton, Cheshire He was educated at Rossall and Birkenhead Schools Entering King's College, London, with a scholarship he gained both junior and senior scholarships, the Tanner prize for obstetrics, and was prosector at the Royal College of Surgeons Captain Bell qualified M R C S Eng in 1902, taking the M B Lond in the same year and the B S in 1903 After holding the post of house surgeon at the Royal Free Hospital he settled in New Brighton as assistant, and subsequently partner to his father, Mr William Bell, at whose death in April, 1915, he succeeded to the whole practice He was honorary senior surgeon to the Wallasey Cottage Hospital, honorary surgeon to the New Brighton Convalescent Home and Wallasey Ladies' Charity, surgeon to the Home for Aged Mariners, Egremont, as well as Admiralty surgeon and agent In November, 1915, he was appointed surgeon to the British Hospital at Wimereux, and later was attached as surgeon specialist to the Anglo American Hospital, where he remained until his death On June 18th he was gazetted as temporary Honorary Captain in the Royal Army Medical Corps

One of his colleagues in France writes of him "Bell worked for the patients day and night and was loved by them all He did 46 operations the day before he died and was quite exhausted by it His was a fine nature strong and true and capable, tender and untiring with the men, loyal to all our interests He died in the midst of his work and at the height of his usefulness"

In his leisure time Captain Bell was a keen athlete, playing for his hospital in the inter hospital cup-ties and as a tennis player represented Cheshire and won prizes in many open tournaments He married in 1904 the younger daughter of Canon Cogswell, D D rector of Wallasey, and leaves a widow and two children

ROBERT WILLIAMS MICHELL, M A, M D, B C CANTAB F R C S ENG

CAPTAIN ROYAL ARMY MEDICAL CORPS

Captain R W Michell, who died in London on July 19th from wounds received in action in France at the age of 56 years was the eldest son of Mr R F Michell, of Truro, and came of an old Cornish family His medical education was begun at Cambridge and continued at St Bartholomew's Hospital He was a devoted member of Caius where he had captained the college boat and graduated in medicine in the University taking the F R C S Eng a little later Among the several appointments he held was a demonstratorship in anatomy in the University and the experience thus gained served him in good stead He remained in Cambridge, where his practice was chiefly among the undergraduates and younger graduates of the University His keenness and energy, with enthusiasm for the young life of the University, his desire to do his best, and give the most valuable of his great store of experience to those who needed it among active under graduates, was a striking characteristic of the man He entered into the conditions liable to arise from undue exercise, with care, skill, and a knowledge that was considerable and of the greatest value Heart strain was one of the conditions he particularly laboured to understand, so that he might guide aright the natural bent of the keen sporting man In this subject he had already won the distinction of being an authority of no mean order He was one of the first practitioners to make use of the electro cardiograph as a regular routine in his clinical studies and practice.

Sir Clifford Allbutt writes of him "Michell was so impressed by the complexity and obscurity of cardiac problems that it was difficult to persuade him to publish any of his researches, and I fear for the same reason that we shall find little left for publication For Allbutt and Rolleston's 'System of Medicine' Michell had contributed a few short paragraphs, and I know he had collected some further notes for a separate edition of my article in that System which probably now will not see the light Nevertheless, in one way or another Michell's researches on cardiac disorders became well known both to the profession and to the public, so that his opinion was sought in many responsible cases Sometimes he attended scientific discussions on cardiac questions but the loose general statements which too often find their way into such conversations made him angry Likewise he was liable to be moved to wrath if on one of his cases another opinion were given on half the consideration and often on less experience than he had given to it. On such occasions, like Lawrence Boythorne, he would express himself with as much vigour and point and with as little malice"

Another friend writes of him "Apart from his medical labours, it may truly be said that no one ever succeeded so much as Michell in winning the confidence of young men in impressing upon them the genuineness of his advice and of the solicitude he ever exercised for the benefit of others"

Captain Michell served in the Boer War, and as soon as the present war broke out he was keen to serve and do his share No one can forget the series of brave acts which he performed just before he was himself wounded and for these he has been recommended for the Victoria Cross He leaves a widow and a boy of eight

---

LIFE SAVING MEDALS OF THE ORDER OF ST JOHN — At a recent chapter general of the Order of St John gold life saving medals were presented to Major Harold Edgar Priestley, C M G, R A M C, and Captain Alan Cunliffe Vidal, D S O, R A M C in recognition of the gallantry displayed by them at the Wittenberg Camp Captain James La Fayette Lauder, D S O, R A M C was prevented by military duties abroad from attending to receive a similar medal

THE HONOURS LIST

The King has conferred the honours mentioned upon the following medical officers in recognition of their gallantry and devotion to duty in the field —

Distinguished Service Order

Temporary Captain W Dawson, R A M C

For conspicuous gallantry and devotion to duty when dressing the wounded and directing stretcher bearers in the firing line At dusk he searched the front himself under heavy rifle fire till every wounded man had been removed

Captain P F Gow, I M S

For conspicuous gallantry and devotion to duty on several occasions notably when he took one end of a stretcher after three bearers had been hit, and brought in a wounded officer

Captain W A Miller R A M C, Special Reserve, attached 22nd (S) Battalion, Royal Fusiliers

For conspicuous gallantry and devotion to duty Captain Miller followed the front line of our attack over ground swept by shell machine gun and rifle fire He searched in every direction for wounded and gained valuable information regarding the situation This he at once communicated and ag in continued his search for wounded This officer has on previous occasions shown distinguished gallantry

Temporary Lieutenant L M Rowlette, R A M C, attached 1st Battalion Welsh Guards

For conspicuous gallantry and devotion to duty During a heavy bombardment he crawled across the open for a considerable distance to attend to two wounded men Later he went out again and although twice wounded dressed the wounds of seven wounded men and tended them till he had to be himself removed

Military Cross

Temporary Captain N Black, R A M C, attached 11th Battalion Argyll and Sutherland Highlanders

For conspicuous gallantry and devotion to duty After a shell had blown in his dressing station and he had been cut bruised and much shaken he rested ten minutes and then although still suffering went out under heavy fire to attend to a wounded officer in the support trenches

Temporary Captain C M Brophy, R A M C, attached 18th Battalion London Regiment (T F)

For conspicuous gallantry in leading bearer squads under heavy shell fire To succour wounded he maintained communication with the regimental aid posts and so enabled a large number of wounded to be rapidly brought back

Captain J A. Cullum, Canadian A.M C, attached 28th Canadian Infantry Battalion

For conspicuous gallantry During a very heavy bombardment by the enemy he saw a sergeant buried in his dug-out by a direct hit He at once went out and at great personal risk succeeded in rescuing the sergeant and taking him to the dressing station On many previous occasions he had displayed great coolness under fire

Captain H E Cumming, No 4 Field Ambulance, Canadian A M C

For conspicuous gallantry and devotion to duty when carrying out his duties during the heavy bombardment of a battery of artillery by the enemy

Captain H F L Hugo, R A M C (T F), attached Royal 1st Devon Yeomanry

For conspicuous gallantry notably when he went to the front line trench under heavy shell fire and, after his orderly had been dangerously wounded and half buried stood by and supported him till help arrived Two officers and two men were killed within a few yards of him On another occasion he brought in a wounded lieutenant across 200 yards of open ground under sniping fire

Captain A E Ironside 4th London Field Ambulance, R A.M.C (T F)

For conspicuous gallantry and devotion to duty when in charge of bearer subdivisions He organised the work most efficiently and assisted in the dressing of wounded under heavy shell fire

Temporary Captain F P Joscelyne, R A M C, attached 2nd Battalion, Royal Sussex Regiment

For consistent gallantry and devotion to duty He has shown complete disregard of personal danger on all occasions and has frequently carried out his duties under heavy fire On one occasion a bullet from a machine-gun passed through his coat but he showed complete indifference

Captain N L Joynt R A M C, Special Reserve, attached 176th Tunnelling Company, R E

For conspicuous gallantry When the enemy exploded a camouflet which choked a mine gallery with foul gas he at once organised rescue work going down himself repeatedly with rescue apparatus Through his cool bravery he succeeded in personally rescuing two men and ensured the quick recovery of others

Captain R L Lloyd, South African Medical Corps

For conspicuous gallantry and devotion to duty when tending the wounded under machine-gun fire

Temporary Captain J M MacKenzie R A M C, attached 6th Battalion Northumberland Fusiliers (T F)

For conspicuous gallantry and devotion to duty Though wounded in the foot and arm he refused to go to hospital and four days later during a heavy hostile bombardment, he went up through the enemy artillery barrage and tended many wounded men though in considerable pain himself

Captain W H Riddell, I M S

For conspicuous gallantry and devotion to duty on several occasions when tending the wounded under heavy fire

Captain R A. Stewart, R A M C, Special Reserve, attached 2nd Battalion Border Regiment

For conspicuous gallantry During the attack on an enemy position he went forward and established an aid post in a mine crater, and tended many wounded under heavy shell fire. His coolness and disregard of personal safety gave great confidence to those round him

Captain G W Treleaven, Canadian Army Medical Corps

For conspicuous gallantry and devotion to duty when attending wounded men under heavy shell fire and getting them into safety

Temporary Lieutenant J R Irwin, R A M C, attached 2nd Battalion, Worcestershire Regiment

For conspicuous gallantry When the enemy exploded a mine damaging our galleries he immediately descended into the gallery and at great risk owing to foul fumes treated a man and enabled him to be brought up alive

Temporary Lieutenant C C Okell, No 6 Field Ambulance, R A M C

For gallant conduct in frequently leading a bearer division over shell swept ground. His bravery and good example greatly assisted in the removal of all our wounded

Temporary Lieutenant Peter Mortimer Turnbull, R A M C, attached 2nd Battalion, Royal West Surrey Regiment

For conspicuous gallantry when tending the wounded under heavy fire on several successive days

With regard to the following, the specific acts for which the Military Cross has been granted will be officially announced later —

Temporary Captain H A Pallant, R A M C, attached 1st Battalion North Lancashire Regiment

Temporary Lieutenant F R Hassard, R.A.M C, 102nd Field Ambulance

Temporary Lieutenant V F Stock, R A M C, 104th Field Ambulance

Temporary Lieutenant G B Wiswell, R A M C, 103rd Field Ambulance

THE NEED FOR OFFICERS IN THE ROYAL ARMY MEDICAL CORPS

At the annual Representative Meeting of the British Medical Association, reference was made by Dr T Jenner Verrall, chairman of the Central Medical War Committee, to a strong feeling that had been expressed in certain quarters on the subject of the withdrawal by the War Office of the privilege of resigning commissions in the Royal Army Medical Corps after 12 months' service Dr Verrall stated that the matter had been taken up with the War Office very thoroughly at the first moment when the idea had been mooted of any such alteration being made in the terms of service and the following communication on the subject was made to the meeting in the form of a letter from Sir Alfred Keogh to Dr Verrall —

July 29th, 1916

DEAR DR VERRALL,—From certain things that have come to my knowledge, I think that a considerable amount of misunderstanding must be prevalent in regard to the temporary order recently issued concerning the privilege accorded to doctors early in this war of resigning their commissions after 12 months' service

All that has been done in this connexion is that a communication was sent a few weeks ago to certain commands instructing them that, for the present, any doctors (under 41 years of age) whose 12 months' term was shortly expiring, and who desired to resign at the end of it, were to be informed that the date of resigning must, in the present serious stress, be postponed for a time until the number of doctors available for taking R A M C commissions should have been increased to a figure more nearly meeting our very grave requirements

The step was taken, I need hardly say, with the very greatest reluctance, but it was imperative by reason of our knowledge of the very heavy needs of the forces, as now visible to everyone, in the recent and present military developments at the Somme and it was due to those heavily increased needs taken in conjunction with the unfortunately inadequate number of doctors forthcoming for commissions in the R A M C during the important months of April, May, and June

And, lastly, it was a strictly temporary order, to be rescinded the moment the number of doctors produced by your Committee becomes sufficient to justify this

In particular, it should be noted that the step thus taken affected and affects not the whole profession who enrol (as has been alleged) but only a very small number of doctors I should tell you, by the way, that the vast majority (over 90 per cent I believe) of the doctors who have taken commissions in the Royal Army Medical Corps since

the privilege of 12 months' service was accorded, have exercised their option in the direction of staying on in the service, and not resigning at the end of their year

And the order affects only those of the men holding commissions at the time it was issued whose year happened to be shortly expiring and who were not proposing to stay on Furthermore, it was restricted to such of that limited number as came within the compulsory provisions of the Military Service Acts, the passing of which has, of course, fundamentally altered the position of all the men under 41 as compared with what it was when they were given their Royal Army Medical Corps commissions in July, 1915

Thus you see the number of doctors affected (and this only temporarily) is extremely small In particular, it must be noted (in view of the misapprehensions so widely circulated) that doctors who have taken commissions at any time during this year or the latter part of last year are in no way affected by the order All these men have come in with their option of resigning unaltered, and, if the number of doctors forthcoming in future is sufficient for our needs, there is no reason to suppose that the option in their cases will ever be altered or need to be withdrawn

There is, therefore, no such "breach of faith" towards the whole profession (and in particular towards the 260 men recently called to commissions) as has been alleged in certain quarters There has been simply a strictly temporary administrative step taken, in relation to a very limited number of medical men (each of them liable now to compulsory service), under compelling military necessities of the first importance for this country, a temporary change which will be rescinded the moment the overmastering needs of the situation have been adequately provided for—in fact, I hope in a very few weeks' time—a step, therefore, in which, when it is properly understood, the whole profession and the public and Parliament will, I am certain, concur, so much so that, I am sure, had we failed to take it, in the circumstances we should have been considered guilty of a grave dereliction of public duty, and the profession, had it failed to respond, of a lack of public spirit of which I, for one, do not believe it to be capable

I write you this letter because I thought it would be well if you would take the opportunity of your annual meeting this week to make this whole matter clear and to dissipate the prevailing misapprehensions on the subject

I am, yours very truly
A KEOGH

FEES FOR EXAMINING RECRUITS

We have received from Dr A G Bateman, the general secretary of the Medical Defence Union, a copy of a letter addressed to him from the War Office which satisfactorily terminates a correspondence of some duration, respecting the claims of medical practitioners on account of fees for medical inspection of recruits in certain districts These claims were disputed owing to the failure of a memorandum issued by the War Office in February, 1915, limiting payment to an amount below the usual scale of peace time, to reach some recruiting centres in time The letter is as follows —

War Office London, S W, 29th July, 1916

SIR,—With reference to previous correspondence on the subject of claims of medical practitioners for the examination of recruits, I am directed to acquaint you that it has now been decided to settle the disputed claims referred to by the payment of 2s 6d a head up to 16 recruits examined and 2s for each recruit examined in excess of 16 in any one day I am to express the hope that this arrangement may be found satisfactory

I am, Sir, your obedient servant,
(Signed) R PATERSON
(For the Assistant Financial Secretary)

Dr A G Bateman General Secretary
Medical Defence Union, 4 Trafalgar-square W C

USE OF MORPHIA FOR WOUNDED MEN IN THE FIELD

The administration of an opiate to the wounded man pending surgical treatment has long been recognised as a legitimate practice Erichsen in his 'Science and Art of Surgery' (tenth edition vol ii) recommended that shock and pain should be counteracted by a little brandy and water and opium, and plenty of cold water to relieve thirst Sir Thomas Longmore considered that morphia (especially in hypodermic injection) might be used with much advantage ("Gunshot Injuries," 1877) the value of the remedy consisting not merely in the reduction of local pain and in soothing spasm, but principally in its influence over the mental irritation and constitutional disturbance which result from them On the other hand, no mention of morphia is made by Surgeon General Stevenson ("Wounds in War, third edition), who recommends hypodermic injection of strychnia for shock, together with the administration of food and stimulants, such as meat extract and a little alcohol In the "Manual of Training" for the use of the Royal Army Medical Corps it is clearly stated that during an engagement the immediate treatment of wounded by the regimental medical detachments includes, *inter alia*, the relief of pain for which a hypodermic tabloid of morphia may be placed under the tongue It is, however, laid down that opiates should only be used under the orders of a medical officer The tablets formerly contained one sixth of a grain of hydrochloride of morphia, they now contain, we believe, one quarter of a grain of morphine tartrate The liability to abuse is obvious, but we are inclined to the belief that the risk of its occurrence is not great, and that the benefit resulting from immediate alleviation of suffering by a small dose of morphia placed under the tongue, as suggested, would outweigh the hypothetical disadvantages The magnitude of the operations in the present conflict the enormous numbers engaged, and the time that must inevitably elapse in many cases before a medical officer can attend personally to the wounded man, combine to suggest some relaxation of the wholesome rule restricting the use of morphia Doubtless this already occurs in practice We have learned that the private soldier can be trusted to a greater extent than would have been thought advisable 20 or even 10, years ago

THE EDUCATIONAL BOOK SCHEME AND BRITISH PRISONERS OF WAR —The recent revelations respecting the condition and needs, physical and mental, of some of the British prisoners of war interned abroad, coupled with the recently imposed restrictions on the transmission, by private individuals, of any printed matter to enemy or neutral countries, make it more important than ever that friends and correspondents of our interned men when writing to them should acquaint them with the existence of the Educational Book Scheme Under this scheme a prisoner can obtain free of charge and carriage paid, good books of an educational character (not fiction or light literature) on almost any subject for reading or private study during his internment by communicating (either directly or through a correspondent) with Mr A T Davies, of the Board of Education, Whitehall, London, S W Prisoners are invited to state as precisely as possible on a form (which can be had gratis on application) what kind of books they desire Offers of suitable books for the Educational Book Scheme will be gladly received by Mr Davies but they should be accompanied by a submission of the list of books proposed to be contributed

Medical News.

EXAMINING BOARD OF THE ROYAL COLLEGES OF PHYSICIANS AND SURGEONS OF EDINBURGH AND ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW — The following are the results of the Triple Qualification Examinations —

FIRST EXAMINATION

William Barton William Campbell, Ronald Gillan Clouston Jessie Hayne Crawford Ian Bruce Cummings David Falconer Smith and Jessie Melville Lyell Wright

SECOND EXAMINATION

Apcar Galustian Stuart Douglas M Ausland, Gordon Patrick Walker and Alexander Watson L D S

THIRD EXAMINATION

Samuel Saxon Barton George Carter Cossar M A (with distinction) William Hutchison Duff Robert Lloyd Jones William Ll Desmond Longford Archibald Buchanan MacDougall L D S Allan Paul M Leod Cuthbert Gaulter Magee Patrick Alphonsus O Brien Archibald Paterson Robb Thomas Talmage Roxburgh L D S (with distinction) and Thomas Robert Wilson

FINAL EXAMINATION (L R C P & S EDIN, L R F P & S GLASG) Richard Lloyd Jones William Bruce Lawson L D S Michael Campbell Kekl Sorabji Bhiwandiwalla Maniketh Vythil Menon William Campbell Borrie John Alexander Murray John Alexander Smith James Young M Lean Percy Hayes and John Bygott

ROYAL COLLEGE OF PHYSICIANS OF LONDON — A Comitia was held on July 27th, Dr Percy Kidd the Senior Censor, being in the chair The following candidates having passed the required examination were admitted Members of the College Richard Alun Rowlands M B

ond., L R C.P , and Gilbert Innes Strachan M.D Glasg (Cardiff) Licences to practise physic were granted to 120 candidates who had passed the requisite examinations. In conjunction with the Royal College of Surgeons of England diplomas in Public Health were granted to Reginald St. George Smalbridge Bond M.B., C.M., F.R C S Edin Ethel Mary Minett M.B B S Lond., and Henry Owen West M D , B S Lond., M.R C.P Lond. On the nomination of the President the Council and the Library Committee the following elections were made —

Censors —Dr W Hale White Dr W Pasteur Dr S H C Martin and Dr H W G Mackenzie
Treasurer —Sir Dyce Duckworth
Editor as Registrar —Dr E. Liveing
Registrar —Dr J A. Ormerod
Harveian Librarian.—Dr Norman Moore
Members of the Library Committee —Dr G N Pitt Dr. C Ogle Dr T H A. Chaplin, and Dr R. O Moon.
Curators of the Museum —Dr J Mitchell Bruce Dr Sir Seymour J Sharkey Dr F W Andrewes and Dr W Hunter
Finance Committee —Dr S P Phillips Dr J Taylor and Dr H R Spencer
Examiners —Chemistry Mr. W H Hurtley and Mr T M Lowry Physics Dr F Womack and Mr A W Porter F R S Practical Pharmacy Dr H. J Campbell Dr F L. Golla, Dr R. H. Miller Dr W E. Dixon, F R.S., and Dr A. J Clark Physiology Dr F A. Bainbridge and Professor W M Bayliss F R S Anatomy Mr W Wright. Medical Anatomy and Principles and Practice of Medicine Dr A. E. Garrod Dr F W Mott Dr A G Barrs Dr F J Wethered Dr F J Smith Dr H G Turney Dr J Fawcett Dr A. M Gossage Dr F J Poynton and Sir John F H Broadbent Midwifery and Diseases peculiar to Women Dr H Williamson Dr C H. J Lockyer Dr. T G Stevens Dr G B Smith and Dr J B Hellier
Public Health —Part I Dr W W O Beveridge, D S O Part II Dr S A. M Coupman
Tropical Medicine —Bacteriology Dr J C G Ledingham Diseases and Hygiene of the Tropics Dr F M. Sandwith.

The following communications were received 1 From the Secretary of the Royal College of Surgeons of England dated May 12th June 9th and July 14th reporting proceedings of the Council of that College on May 11th June 8th and July 13th respectively 2 From the Royal Society, dated June 19th enclosing a copy of regulations for the organisation of a Conjoint Board of Scientific Societies adopted at a conference of representatives of the societies concerned and asking the College to nominate representatives upon the Board The Acting President nominated the President and Dr Henry Head An offer was received from Mrs Streatfeild to give £10 000 in Consols to be held by the Royal College of Physicians of London and Royal College of Surgeons of England jointly in trust for the promotion of research The offer was accepted and a letter ordered to be written to Mrs Streatfeild thanking her for her generous gift Dr T D Acland was elected a Representative Governor of the University of Sheffield and Sir George Savage was reappointed a Representative on the Committee of Management of the Chelsea Physic Garden. Reports were received from the Committee of Management recommending that Rugby School be added to the list of institutions recognised by the Examining Board in England for instruction in Chemistry and Physics, and that the State University of Iowa Iowa City U S A., be added to the list of universities whose graduates in medicine are admissible to the Final Examination of the Conjoint Board. The reports were adopted After some further formal business the Acting President dissolved the Comitia

ROYAL COLLEGE OF SURGEONS OF ENGLAND —An ordinary meeting of the Council was held on July 27th, Sir Watson Cheyne the President being in the chair In accordance with a report from the Court of Examiners it was resolved to issue Diplomas of Membership to 119 successful candidates It was resolved to issue a Licence in Dental Surgery to a successful candidate The secretary laid before the Council a balance-sheet and a statement of the receipts and expenditure of the Council These were approved and adopted and it was resolved to issue them with the annual report of the Council to the meeting of Fellows and Members and also in the calendar A letter was read from the Assistant Secretary of the Local Government Board forwarding by the direction of the President of the Board copies of the circular and regulations which the Board have issued with regard to the prevention and treatment of venereal diseases.

The Licence in Dental Surgery has been conferred upon Geoffrey Walter Allen Guy's Hospital, who has passed the necessary examinations and complied with the by laws.

CENTRAL MIDWIVES BOARD —Special meetings of the Central Midwives Board were held at Caxton Hall, Westminster on July 26th and 27th with Sir Francis H Champneys in the chair A number of midwives were struck off the Roll the following charges amongst others having been brought forward —The midwife neglecting to take and record the pulse and temperature of the patient at each visit as required by Rule E 15 not keeping her register of cases as required by Rule E 23. The midwife did not give to the Local Supervising Authority every reasonable facility for inspection of her register of cases, bag of appliances, and place of residence, nor for the investigation of her mode of practice, as required by Rule E 24, she did not keep her bag and appliances in a satisfactory condition within the meaning of Rules E 1 and 2. Having administered to the patient a drug other than a simple aperient the midwife failed to note the fact with the particulars thereof in her register of cases, as required by Rule E 15 the child suffering from inflammation of, and discharge from, the eyes on the fifth day, and continuing so to suffer, she did not explain that the case was one in which the attendance of a registered medical practitioner was required, as prescribed by Rule E 20 (5) The midwife not being scrupulously clean in every way, as required by Rule E 1, when attending patients she did not wear a clean dress of washable material, as required by Rule E 1 A child suffering from hæmorrhage of the cord, the midwife did not until 26 hours after the birth explain that the case was one in which the attendance of a registered medical practitioner was required as prescribed by Rule E 20 (5), when advising medical help as aforesaid she did not hand to the husband or the nearest relative or friend present the form of sending for medical help, properly filled up and signed by her in order that this might be immediately forwarded to the medical practitioner, as required by Rule E 19 she neglected to give to the registered medical practitioner who saw the child any information as to the hæmorrhage and medical aid having been sought for the child as aforesaid she neglected to notify the Local Supervising Authority thereof, as required by Rule E 21 (1) (a)

A letter was considered from the Sister of the Maternity Ward at the London Hospital inquiring whether attendance by a pupil midwife at a course of 15 lectures delivered by the obstetric physician and 13 delivered by the senior resident accoucheur would be deemed a compliance with Rule C 1 (1) (c) requiring inter alia attendance at a course of not less than 20 lectures delivered by a registered medical practitioner recognised by the Board as a lecturer The Board directed that the reply be that the Board is not prepared to adopt the suggestion of the Sister of the Maternity Ward of the London Hospital according to Rule C 1 (1) (c) the approved lecturer is bound to deliver not less than 20 lectures Any additional instruction by another person would doubtless be advantageous

MEMORIAL TO THE LATE LIEUTENANT-COLONEL EDSELL R A M C —On Sunday last a mural memorial to the late Lieutenant Colonel George Alfred Edsell, R.A.M C, was unveiled by Canon Potter vicar of St. Mark's Church Surbiton Lieutenant-Colonel Edsell had been in command of the 3rd Home Counties Field Ambulance and died at his residence at Surbiton on August 15th 1915 aged 56 years after being invalided home on account of a severe attack of pneumonia The tablet which has been placed on the north wall of the church was subscribed by his patients and friends in the Surbiton district

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS

Medical Arrangements in Mesopotamia

WHEN the Bill setting up Statutory Commissions to inquire into the conduct of the operations of war in the Dardanelles and in Mesopotamia was passing through the House of Commons several amendments were made in it The House decided to add to the Dardanelles Commissioners Mr W Roch M.P., and to the Mesopotamia Commissioners Commander J C Wedgwood, M.P., and also in each case a naval and a military officer

On the motion of Mr DILLON an important provision was inserted in the clause dealing with the reports of the Commissions. It was to the effect that "the Commissioners appointed to inquire into the Mesopotamian campaign shall proceed with all possible expedition to inquire with regard to the provision for the sick and wounded, and shall report the results of their inquiry on this matter before proceeding with the rest of their inquiry" This provision was accepted without very much discussion, Mr CHAMBERLAIN the Secretary for India intimating that the Government would accept it He added that he believed that the provision dealt with the point on which the public most desired to have information and to have a report at the earliest possible time He quite understood that the House did not wish the report on that subject to be delayed until the Mesopotamian Commission had finished the whole of its inquiries

Medical Men and Petrol

In the House of Commons on Tuesday, August 1st, Mr HARCOURT made a statement as to the apportionment of petrol supplies by the Petrol Control Committee He said that medical men would get the full amount of their application up to a maximum of 50 gallons per month If any increase of petrol became available this 50 gallons maximum would be the first to have further consideration when special need could be shown

HOUSE OF COMMONS

WEDNESDAY, JULY 26TH

Deaths in Troop Train in India

Mr W ROCH asked the Secretary for India what regiments of Territorials took part in the journey by rail from Karachi to Peshawar, and the total number of deaths and of sickness —Mr CHAMBERLAIN replied Drafts for several regiments aggregating over 1000 men were sent out together from this country, and I cannot at present give details They will, no doubt appear in the report which I am expecting from India 136 cases of heat-stroke occurred, of which 19 have, according to the latest information in my possession, proved fatal

Colonel YATE asked whether the senior officer from the Indian Army Headquarters and the specially selected medical officer deputed to investigate the case of the fatalities that occurred early in June in the troop train at Rohri and other places between Karachi and Lahore had been instructed to report as to who was responsible for the despatch of these troops up country at that time instead of retaining them in Karachi till the weather was suitable for travelling, and, if not, whether orders to that effect would now be issued — Mr CHAMBERLAIN answered I have already given to the House all the information in my possession as to the mission confided to the two officers referred to in the question I have also informed the House that I have instructed the Government of India that when they have ascertained the facts and fixed the responsibility for this disaster they are to hold the persons responsible to strict account I have nothing material to add to these statements, but my honourable and gallant friend may be glad to know that I have asked the Government of India to report specifically on the following questions Whether the loss of life was due to the route selected or to the lack of proper arrangements for the journey, or to both causes combined, and as regards the route chosen, whether it was urgently necessary to send the drafts by that route at once or whether the drafts could not have been taken to Bombay and detained in stations in the Deccan till the monsoon broke in Northern India

Sir A MARKHAM Did the Government of India take any steps when this matter was mentioned in the House of Commons, and what was the reason why there should be delay in settling the responsibility ?—Mr CHAMBERLAIN The Government of India instituted, I think, an inquiry as soon as the case came to their knowledge, and they informed me of this lamentable occurrence in a telegram, dated I think, June 15th In the same telegram they reported that they had instituted this inquiry and also that they are awaiting the result of that inquiry before fixing the responsibility

THURSDAY, JULY 27TH

Health of Troops at Salonica

Sir E CORNWALL asked the Financial Secretary to the War Office whether the health of the British troops in Salonica and district was satisfactory, and whether, in view of the desire of their relatives and of the country generally for more information, he would arrange for the issue of occasional official bulletins with regard to these Forces —Mr FORSTER replied Cases of enteric and dysentery have been very few, although there has been during the past three months some increase in the admissions to hospitals owing to the larger number of cases of malaria, diarrhœa, and pyrexia The medical authorities however, consider that on the whole the health of the troops is satisfactory The issue of official bulletins must, of course be dependent on there being anything to report Such bulletins are, and will continue to be, issued when there is anything to say

MONDAY, JULY 31ST

Approved Societies and Venereal Disease

Mr DENNISS asked the representative of the National Insurance Commissioners whether, in view of the report of the Royal Commission on Venereal Diseases that the rule by which Approved Societies were empowered to refuse sickness benefit to insured persons suffering from such disease was contrary to the interests of public health and national economy, and of the endorsement thereof by the British Medical Association and the conference of Industrial Assurance Approved Societies, and of the inestimable advantage to the race as well as to the individual arising from sufferers obtaining proper treatment in the primary stages of the disease, the National Insurance Commissioners would consider the advisability of recommending the Government to guarantee to the Approved Societies the deficiency in their funds as might result from the relaxation by them of the aforesaid rule —Mr C ROBERTS answered The rule disqualifying for benefit a member whose incapacity is due to his own misconduct is optional, and can be revoked by the society at its pleasure The financial of the Insurance Act therefore must be held to include provision for the payment of benefit in such cases The problem is, in fact, not wholly or mainly a financial one since the safeguarding of the benefit funds was not the object, so far as I am aware, which societies had in view in originally adopting rules of the kind in question The whole question, to the vital importance of which the Insurance Commissioners are fully alive is receiving careful consideration I am hoping to have an early opportunity of consulting Approved Societies with regard to the position of the rules

Unregistered Dentists and the Supply of Cocaine

Mr RAFFAN asked the Home Secretary whether the draft regulations designed to restrict the sale of cocaine which had been submitted to the Royal College of Physicians as representing the medical profession, for their consideration had also been submitted to the British Dental Association as representing registered dentists, and the Incorporated Dental Society, as representing unregistered practitioners in dentistry, who were equally interested in the matter

Several other Members had questions on the notice paper dealing with the same subject

Mr H SAMUEL (answering all these questions together) replied The use of cocaine by registered dentists is not interfered with As regards the persons who are referred to in the question as unregistered practitioners in dentistry I am aware that there are a considerable number of persons who do dental work without being registered under the Dentists Act but these persons are not possessed of the qualifications for the work which are required by that Act and are not entitled to take any step implying that they are specially qualified to practise dentistry I have very carefully considered the position of these persons but it would go a long way to nullify the Order and defeat the object which the Government have in view if any person who chooses to set up as an unregistered dentist were permitted to obtain and administer cocaine I see no reason for thinking that any serious hardship will be caused by the prohibition to the unregistered dentists or their patients There are other and less dangerous drugs which can be used for the same purpose

Mr HOGGE Why cannot these unregistered men have the same quantity of cocaine as they have been using?—Mr SAMUEL For the reasons stated in my very full reply

Mr ANDERSON Is the right honourable gentleman aware that this drug can be supplied in a solution in less than 1 per cent under circumstances which will make its improper use impossible?—Mr SAMUEL We find it is necessary to have these stringent regulations in order that the very grave evil which is widely prevalent may be quickly suppressed

Sir H CRAIK Is the right honourable gentleman not aware that these unregistered men constitute a very grave danger to the public and a great injury to the health of the community?

No answer was given

Mr RAFFAN Will the right honourable gentleman give these men an opportunity of stating their whole case before he takes the drastic step of depriving them of the use of this drug?—Mr SAMUEL The regulation has already been made

On the motion for the adjournment Mr RAFFAN drew attention to the prohibition of the sale of cocaine to unregistered dentists, to whom he said large portions of the community looked for dental treatment The supply of registered dentists was not large enough for the needs of the population It would cause pain and suffering to the patients of the unregistered men if they could not obtain cocaine for local anæsthetics for extractions He was informed that no adequate supply of novocaine was available as the Government had taken it The honourable Member urged that a relaxation of the regulations on the sale of cocaine should be made in favour of the unregistered dentists

Mr SAMUEL in reply said I do not think that the honourable gentleman is correct in saying that the regulation deprives any unregistered dentist of the right to administer local anæsthetics It deals only with cocaine and I am advised that among registered practitioners no cocaine is used more than cocaine

Mr RAFFAN They cannot get it

Mr SAMUEL Novocaine is regarded as a safer and better means of applying a local anæsthetic and it is anticipated that the regulation will stimulate the production of novocaine If it is the case that novocaine is really not obtainable at the present time that is a new fact which is

ot previously been brought to my notice, and it is a fact hat I shall have to take into consideration I am advised hat the right course if my honourable friend agrees, is to timulate the use of novocaine rather than make exceptions n the regulations restricting the use of cocaine I am nformed on very good authority that the application of ocaine may be extremely dangerous in the hands of nskilled persons There have been some fatal and a large umber of non fatal cases

Mr RAFFAN They are among the registered dentists —

Mr SAMUEL No unregistered dentists I have had a umber of specific cases mentioned to me within recent ears of the death and serious poisoning due to unskilled use of ocaine and it is regarded by many as being more dangerous n its application than ether A certain number of men who ractise dentistry without being registered are also chemists nd druggists, and all these men can obtain cocaine for the purpose of their dental business because they are also chemists nd druggists and therefore free from the restrictions Others however, move about from place to place, they annot be traced A certain number of these men are of no ery elevated character or remarkable skill or training and t is considered that there would be very great administrative difficulties in trying to organise a scheme if we allowed the se of cocaine by these individuals for the very reason that hey are not registered It is suggested that many of them belong to organisations I do not know that it would be practicable to give these organisations an official status and recognise the use of cocaine by all the members of these particular societies Certainly we cannot allow any person who chooses to call himself an unregistered dentist to obtain a supply of cocaine as though he were a registered person in recognised practice

Mr CHANCELLOR Can you issue licences under special conditions?—Mr SAMUEL It would be a very difficult thing, especially now when all officials are greatly overworked, to establish an entirely new class of unregistered dentist in which every case would have to be inquired into one by one I have listened to what has been said as to the question whether there are sufficient supplies of novocaine, and to that aspect of the question I will certainly address myself

Mr RAFFAN Will the right honourable gentleman not consider the question of giving a little time to these unregistered men? They might be ruined At any rate he might consider the suggestions put before him which would enable the possibility of bad treatment to be prevented entirely —Mr SAMUEL I will do so I will first see whether novocaine cannot be obtained quite freely

Royal Army Medical Corps Officers in Egypt

Sir H CRAIK asked the Financial Secretary to the War Office whether doctors employed in Egypt for a year had been informed that they must remain for a longer period and, if so whether such doctors might be allowed to return to this country and to exercise their right of appeal to the professional committee —Mr FORSTER wrote in reply Yes sir Temporarily commissioned Royal Army Medical Corps officers serving in Egypt who would on ceasing to serve as doctors become subject to the provisions of the Military Service Act have been retained beyond the termination of their year s contract Their retention was necessary in order to provide adequately for medical requirements It is hoped, however that they may be able to return to this country at an early date when reliefs are available

TUESDAY, AUGUST 1ST

Heat stroke in Troop Train in India Government Action

Major ASTOR asked the Secretary for India whether he had any further information about the troop train disaster in which a large number of soldiers suffered from heat stroke —Mr CHAMBERLAIN replied I will read a paraphrase of a telegram received from the Government of India

We can now give a considered opinion having received report of Committee The responsibility for diverting the ship from Bombay to Karachi rests with Brigadier General Roe who was acting as Quartermaster-General at the time. He knew unacclimatised troops had never before been sent in large numbers by rail in the middle of summer through the Sind Desert. He knew or should have known, that the Commander in Chief in December 1915 had decided that Karachi should not be used as a port at which wounded and sick British troops should be landed and distributed to other stations on account of danger of sending them in the hot season through Sind. It follows that before Ballarat was diverted to Karachi Acting Quartermaster General should have consulted Commander in Chief and he did not do this Having taken on himself responsibility he should certainly have warned Karachi military authorities to take special precautions for safety of troops during journey by rail. He did not do this We therefore must hold him responsible and propose to remove him from his appointment of Deputy Quartermaster-General

It is clear from evidence that the mischief began before disembarkation many men having been seen on deck bareheaded in the sun All the officers on board were quite inexperienced, and we cannot therefore hold them blameworthy The General Officer Commanding at Karachi was responsible for all arrangements for railway journey in his capacity as Embarkation Officer It is shown from evidence that on the day concerned he was very busy but he had ample warning of Ballarat's arrival. Though he knew responsible members of his staff with one exception were inexperienced he took no steps nor gave any orders to see that the safety or comfort of the troops was provided for In this we consider he failed in his duty and we propose his removal

Special blame we consider attaches to the Assistant Director of Medical Services at Karachi an officer of long experience of the Indian Medical Service In the circumstances it was undoubtedly his duty to see that every precaution suggested by medical science for the safety of the troops was taken He failed in our opinion to do this We therefore propose to remove him

A number of omissions and errors on the part of other officers were committed but these were due partly to inexperience and partly to adherence to regulations intending to govern only the ordinary trooping in cold weather We do not propose to take any action in those cases The only excuses that can be urged in favour of the officers who are in our opinion responsible are that many of the casualties were due to facts that in many cases the men left their carriages bareheaded and that the temperature during the journey was unusually high Nevertheless though these facts may have increased the number of casualties we are clear that there can be no doubt that the train left Karachi insufficiently equipped over-crowded and without experienced officers either medical or combatant. We place for these reasons the responsibility on Brigadier General Roe, on the General Officer Commanding and on the Senior Medical Officer at Karachi All that was possible seems to have been done by the local authorities beyond Karachi throughout the journey

I should add (continued the right honourable gentleman) that I have expressed my concurrence with the course the Government of India have announced they intend to take with regard to the three officers I am inquiring whether special instructions for the removal of troops during the hot weather have already been issued and if not, suggesting that they should be issued at once, and I am communicating with the War Office at once in order that officers taking drafts out to India may be warned to take all precautions

Appointments.

Successful applicants for vacancies Secretaries of Public Institutions and others possessing information suitable for this column are invited to forward to THE LANCET *Office, directed to the Sub-Editor not later than 9 o clock on the Thursday morning of each week such information for gratuitous publication*

BLUETT D C has been appointed Resident House Surgeon at St Thomas s Hospital.

CHAESLEY R S M R C S L R C P Lond Acting Assistant Surgeon to the Royal Westminster Ophthalmic Hospital

HAMILTON M P O M R.C S L.R C.P Lond Casualty Officer and Resident Anæsthetist at St Thomas s Hospital

HARRIS J R. Resident House Physician at St Thomas s Hospital

HINSLEY E H V M R C S L.R C P Lond Casualty Officer and Resident Anæsthetist at St Thomas s Hospital.

HYMAN O H. Resident House Physician and also House Surgeon and Resident Anæsthetist at St Thomas s Hospital

JONES S H M M.R C S L R C P Lond. Resident House Surgeon at St Thomas s Hospital

MARRIOTT W Resident House Surgeon at St Thomas s Hospital

MAVROGORDATO A M.R C S L.R C P Lond Resident House Physician at St Thomas s Hospital.

RIVETT LOUIS C., M C Cantab. F R.C S Eng., Obstetric and Gynæcological Registrar and Tutor to the Middlesex Hospital.

SPROTT N A. M.B B Ch Oxon M R.C S L.R C P Lond. Casualty Officer and Resident Anæsthetist at St. Thomas s Hospital

VEY F H. Resident House Surgeon at St Thomas s Hospital

WHITCOMBE, R C P., M R.C S L.R C P Lond., Casualty Officer and Resident Anæsthetist at St Thomas s Hospital

WILLS A. G P B.A. Cantab M.R.C S L.R.C.P Lond Casualty Officer and Resident Anæsthetist at St Thomas s Hospital

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index)

When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor

BEDFORD COUNTY HOSPITAL.—House Surgeon, unmarried Salary as arranged, with board, &c.

BIRKENHEAD UNION INFIRMARY —Female Resident Assistant Medical Officer Salary at rate of £175 per annum, with board &c

BIRMINGHAM AND MIDLAND EYE HOSPITAL, Church street —Female Resident Surgeon. Salary £200 per annum with board, &c.

BIRMINGHAM CITY —Female Assistant Medical Officer for Infant Consultation work. Salary £300 per annum

BIRMINGHAM CITY EDUCATION COMMITTEE.—Two Temporary Assistant School Medical Officers Salary £300 per annum

BOLTON INFIRMARY AND DISPENSARY —Female Second House Surgeon Salary £200 per annum with board &c.

BRISTOL ROYAL INFIRMARY —House Surgeons and House Physicians Salary at rate of £120 per annum, with board &c. Also House Surgeon to Throat, Nose and Ear Department

BURY INFIRMARY —Junior House Surgeon. Salary £150 per annum with board, &c.

CARDIFF KING EDWARD VII s HOSPITAL —House Surgeon for six months. Salary at rate of £140 per annum with board &c.

CHARING CROSS HOSPITAL, W C —Resident Medical Officer Salary at rate of £200 per annum, with board &c.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST Victoria Park E —Resident Medical Officer Salary at rate of £200 per annum, with board &c.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Senior House Surgeon. Salary £300 per annum with board &c.

DUNDEE ROYAL INFIRMARY.—Two House Surgeons.

GRIMSBY AND DISTRICT HOSPITAL.—House Surgeon. Salary £5 5s per week; with board &c.

GUILDFORD ROYAL SURREY COUNTY HOSPITAL.—House Surgeon. Salary £150 per annum, with board, &c.

HOSPITAL OF ST JOHN AND ST ELIZABETH, 40, Grove End-road, N.W.—Resident Medical Officer unmarried for six months. Salary at rate of £250 per annum with board, &c.

HUDDERSFIELD COUNTY BOROUGH.—Assistant School Medical Officer. Salary £300 per annum.

KING EDWARD VII.'S HOSPITAL FOR OFFICERS, 9, Grosvenor-gardens, S.W.—Resident Medical Officer.

LEEDS PUBLIC DISPENSARY.—Female Resident Medical Officer. Salary £200 per annum, with board &c.

LINDSEY (LINCOLNSHIRE) COUNTY COUNCIL.—Locum Tenens Assistant Tuberculosis Officer for one month. Salary at rate of £400 per annum.

LIVERPOOL, DAVID LEWIS NORTHERN HOSPITAL.—House Surgeon for three or six months. Salary at rate of £150 per annum with board &c.

MAIDSTONE, WEST KENT GENERAL HOSPITAL.—Junior House Surgeon. Salary £150 per annum with board, &c.

MANCHESTER CORPORATION.—Temporary Assistant Tuberculosis Officer. Salary at rate of £350 per annum.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Park-place, Cheetham Hill-road.—Female House Surgeon. Salary £120 per annum, with board &c.

MANCHESTER ROYAL EYE HOSPITAL.—Junior House Surgeon. Salary £120 per annum with board &c.

MANCHESTER VICTORIA MEMORIAL JEWISH HOSPITAL.—Resident Medical Officer for six months. Salary at rate of £100 per annum.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Northwood, Middlesex.—Resident Medical Officer. Salary £120 per annum with board &c.

OXFORD EYE HOSPITAL.—House-Surgeon.

ROCHESTER, ST BARTHOLOMEW'S HOSPITAL.—Clinical Assistant. Salary at rate of £110 per annum with board &c.

ST PANCRAS INFIRMARY.—Female Junior Assistant Medical Superintendent of South Infirmary, Pancras-road, N.W., and Junior Assistant Medical Officer of House adjacent. Salary at rate of £200 per annum with board &c.

SHEFFIELD JESSOP HOSPITAL FOR WOMEN.—Junior Female House Surgeon unmarried for Gynæcological and Maternity Departments. Salary £160 per annum with board &c.

SUNDERLAND THE ROYAL INFIRMARY CHILDREN'S HOSPITAL.—Female Resident Medical Officer for six months. Salary £100 per annum with board &c.

WARRINGTON LORD DERBY WAR HOSPITAL.—Resident Anæsthetist. Salary £1 per day, with board, &c.

WESTMINSTER CITY UNION INFIRMARY, Fulham-road, S.W.—Temporary Assistant Medical Officer. Salary £250 per annum with board &c.

Births, Marriages, and Deaths.

BIRTHS

TOPHAM.—On July 31st, at Hill Crest, Chartham, near Canterbury, the wife of J. Arthur Topham, M.R.C.S., L.R.C.P., of a son.

MARRIAGES

ALLNUTT—GAINSFORD.—On July 27th, at St. Saviour's Church, Hitchin, Edward Bruce Allnutt, Captain R.A.M.C., to Joan Cicely, daughter of the Rev. G. B. and Mrs. Gainsford of Woodside, Hitchin.

MECREDY—KINGSMILL.—On July 29th, at St. Andrew's Church, Bocombe, Cedric Cowan Mecredy, M.D., R.A.M.C., to Phyllis Eileen, youngest daughter of the late Judge Kingsmill of Toronto, and of Mrs. Kingsmill, now of Burnham, Som.

DEATHS

HILLBROOK.—On July 22nd, at Nairobi, Captain Wallace Hillbrook, M.B., B.C. Camb., Medical Officer to the Congo Carrier Corps, B.E.A. Expeditionary Force, aged 24 years.

LISTER.—On July 17th, at sea, Lieutenant-Colonel Arthur Hugh Lister, R.A.M.C. (T.), M.D., C.M.G., M.O. 19th General Hospital, Alexandria, aged 51 years.

POWER.—On July 28th, at Holly Lodge, East Molesey, Sir William Henry Power, K.C.B., F.R.S., aged 75 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, August 2nd, 1916.

Date	Barometer reduced to Sea Level and 32° F	Direction of Wind	Rain fall	Solar Radio in Vacuo	Maximum Temp Shade	Min. Temp	Wet Bulb.	Dry Bulb	Remarks.
July 27	30·100	S.E.		125	80	60	60	62	Fine
28	30·220	S.E.		113	79	61	61	64	Fine
29	30·330	E.	...	118	77	60	69	64	Fine
30	30·270	N.W.	...	123	82	62	61	66	Fine
31	30·164	N.		125	84	65	66	71	Fine
Aug. 1	30·180	N.E.	...	126	84	65	64	69	Fine
2	30·214	S.W.		122	81	62	62	67	Fine

Notes, Short Comments, and Answers to Correspondents.

STUDENTS' NUMBER OF THE LANCET

INFORMATION intended for the Students' Number of THE LANCET must be sent WITHOUT DELAY, addressed to the Sub Editor, and marked on the envelope "Student Number Only."

THE NURSING PROFESSION IN INDIA

WHEN plague first broke out in Bombay a number of Parsi ladies volunteered their services as nurses in Dr. Bahadurji's plague hospital. Their services were very useful and greatly appreciated at the time by the Parsi community, but since then nursing as a profession has not made any substantial advance in the community, because the recruits are not from the right class. While there is at present a distinct want of educated and trained Parsi nurses, a number of Parsi ladies turn their attention to becoming graduates, and afterwards find it difficult to get appointments. Dr. Masina was the first to initiate the proper nursing of patients in the Parsi wards of the Sir Jamsetjee Jeejeebhoy Hospital, and he has now projected a scheme for training Parsi women graduates as nurses, which will be put into execution if to begin with about half a dozen Parsi women graduates come forward to take advantage of the scheme. Dr. Masina thinks that if a few educated ladies will serve as nurses old prejudices will die out, and their success should give a great impetus to other women graduates to take up the profession. Dr. Masina lays great emphasis on the fact that the proper practice of the profession improves the moral tone of those outside the profession in the same way as, or even in a better way than, missionary work. To induce Parsi women of university education to learn nursing Dr. Masina has prepared a graduated scale of honorariums, commencing from Rs. 50 and rising up to Rs. 300 which will be paid to them during their training. After their full training exceptionally good nurses will be sent to Europe or America for higher training. The result of Dr. Masina's experiment will be watched with interest not only by the Parsi community but by the Indian community at large.

TYPHOID MIXED VACCINES

Messrs. Burroughs, Wellcome and Co., Snow Hill Building, London, E.C., prepare a series of mixed vaccines. No. 1 containing typhoid, paratyphoid A, and paratyphoid B bacilli. No. 1B contains in 1 c.c. 1000 million typhoid bacilli, 750 million paratyphoid A bacilli, and 750 million paratyphoid B bacilli. No. 1 contains half these quantities in 1 c.c. As is pointed out fevers caused by paratyphoid A and paratyphoid B are responsible for a great deal of invaliding, although the mortality rates are low. Evidence goes to show that there is no diminution of the immediate immunity to typhoid by vaccination as a consequence of the addition of the other two organisms to the vaccine. The belief would appear to be justified on the other hand that the use of a mixed vaccine confers a definite amount of immunity against all three fevers.

"CRAIGLEITH HOSPITAL CHRONICLE"

THE August number of this journal has several articles of interest, amongst them one entitled "Unusual Occupations Followed by the Blind," containing encouragement to those suddenly deprived of sight. It is shown how a blind clergyman may continue to follow his profession, how a blind man may conduct a coal agency, subsequently becoming the head of the firm, and how a man in humble circumstances may earn £2 a week by selling flowers. The writer offers to give advice to blind people seeking suitable occupation or to those interested in them. The magazine (price 6d.) may be obtained from the 2nd Scottish General Hospital, Craigleith, Edinburgh.

THE SALE OF MEDICATED WINES

THOSE concerned in this business have evidently found some inconvenience in complying with the General Order issued a week ago to come into force on and after August 1, 1916, for the Control Board (Liquor Traffic) have now issued a new provision. The Order now stands that in any case where such medicated wine or mixture or preparation is so sold or supplied at any time before the 1st day of October 1916 it shall be deemed to be a sufficient compliance with the terms and conditions of this Order if such sealed packet bears such label. The original Order provided that the bottle should be labelled with a declaration giving the alcoholic strength of the wine in terms of proof spirit.

EDUCATIVE CONVALESCENCE

THE Cripple Home at Chailey was founded years ago by the Guild of Play and the Guild of the Brave Poor Things as a place where children should be trained to become independent of their physical fitness and make a well-drilled pageant of their work and play With the Cripple-Home are now associated the Princess Louise Military Wards and the Heritage Craft Schools; and Bishop Forrest Browne in an illustrated pamphlet has described how the trained crippled boys joyfully act as orderlies to the maimed soldiers and become their nurses and instructors, and how when convalescent the soldier finds the work of the carpenters and metal workers in the Craft School very catching, so that he consciously becomes a useful workman himself The pamphlet contains many illustrations of the various useful activities of the soldiers as well as of the cripple boys and girls and the cripple babies in the Montessori School The senior medical officer, Mr H. S Basden, M R C S, writes on the medical aspect of the work Funds are needed to continue it, and any further information will be gladly given by the founder and honorary secretary, Mrs C W Kimmins the Old Heritage, Chailey, Sussex.

A USEFUL HOLIDAY GUIDE

A HANDY book entitled "The Holidays Where to Stay and What to See," published by Walter Hill 67, Southampton row, W C, price 1s contains a selection of the holiday publications of the Midland, London and North Western, Great Northern, Great Eastern, Great Western, and the Great Central railways The illustrations maps, and notes on the towns and districts supplied by these railways as well as the lists of apartments, hotels and boarding houses should materially help the reader in finding a suitable holiday locality

J McO—Our correspondent acted quite rightly in declining to enter into any such bargain

R L is thanked for his interesting suggestion

G R O—Application should be made to the Incorporated Society of Trained Masseuses, 159, Great Portland street, W, or to the London School of Massage 211, Great Portland street W

E B F—Such synonyms do not present any difficulty to the qualified dispenser There is undoubtedly a strong case against multiplicity of names for synthetic drugs but a competent dispenser should not be embarrassed by remembering "laudanum" as an alternative rendering for "tincture of opium"

COMMUNICATIONS not noticed in our present issue will receive attention in our next

BOOKS ETC, RECEIVED

CHAPMAN AND HALL, London WILEY J, New York
Laboratory Manual of General Microbiology Prepared by Ward Giltner Head of Laboratory of Bacteriology Hygiene and Pathology Michigan Agriculture College Price 10s 6d net.

CHURCHILL J AND A, London.
Urine Examination Made Easy By Thomas Carruthers M.A M B Ch.B Third edition Price 1s net.
Story of a Red Cross Unit in Serbia. By James Berry B S., F R C S F May Dickinson Berry M D B S W Lyon Blease LL.M and other Members of the Unit. Price 6s net

CORNISH BROTHERS Birmingham
Economic Dishes for War time By Florence A. George Price 6d.

DORNAN W J., Philadelphia.
Transactions of the American Surgical Association Vol XXXIII Edited by J F Binnie M.D

GRIFFIN CHARLES, AND Co, London
A Surgical Handbook. By F M Caird, M B F R C S Edin and C. W Cathcart, M B F R C S Eng & Edin Seventeenth edition with Appendix. Price 8s 6d net

JOHNS HOPKINS PRESS THE, Baltimore.
The Johns Hopkins Hospital Reports Vol XVII

LIPPINCOTT J B COMPANY London and Philadelphia.
Surgical and Gynæcological Nursing By Edward Mason Parker M D F.A.C S Surgeon to Providence Hospital Washington, D C and Scott Dudley Breckinridge M.D F A.C S., Gynæcologist to Providence Hospital Washington D C Price 10s 6d net.
A Text-Book of Physics and Chemistry for Nurses By A. R Bliss Jr., Ph.G Ph Ch A M., Phm.D M.D and A H Olive A.B A M Ph.Ch Phm.D Price 6s net

PEARSON C ARTHUR London
Life-saving in War Time By Mabel Palmer M.A. With Introduction by Rt. Hon Arthur H D Acland Compiled for the Infant Welfare Propaganda Committee Price 1s net.

PUBLISHED BY THE AUTHOR AT BALTIMORE.
Collected Reprints of Thomas S Cullen M B Vol II 1916

ROBERTSON GEORGE, AND Co Melbourne Sydney Adelaide and Brisbane
Practical Anatomy By Richard J A Berry M D Edin M D Melb F R S Edin F R.C S Edin. Three Vols.

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c

POST-GRADUATE COLLEGE West London Hospital Hammersmith road W

MONDAY—2 P.M., Medical and Surgical Clinics X-Rays Mr Gray Operations Mr B Harman: Diseases of the Eye. Dr Simson: Diseases of Women

TUESDAY—2 P.M, Medical and Surgical Clinics X Rays Mr Baldwin; Operations Dr Banks Davis: Diseases of the Throat, Nose and Ear Dr Pernet: Diseases of the Skin

WEDNESDAY—10 A.M., Dr Saunders: Diseases of Children. Dr Banks Davis: Operations of the Throat, Nose, and Ear 2 P.M., Medical and Surgical Clinics X-Rays Mr Pardoe: Operations Dr Simson: Diseases of Women

THURSDAY—2 P.M., Medical and Surgical Clinics X Rays Mr Gray: Operations Mr B Harman: Diseases of the Eye

FRIDAY—10 A.M., Dr Simson: Gynæcological Operations 2 P.M., Medical and Surgical Clinics X Rays Mr Baldwin: Operations Dr Banks Davis: Diseases of the Throat, Nose, and Ear Dr Pernet: Diseases of the Skin.

SATURDAY—10 A.M. Dr Saunders: Diseases of Children Dr Banks Davis: Operations of the Throat, Nose, and Ear Mr B Harman: Eye Operations 2 P M, Medical and Surgical Clinics X Rays Mr Pardoe: Operations

EDITORIAL NOTICES

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR" and not in any case to any gentleman who may be supposed to be connected with the Editorial staff; It is urgently necessary that attention should be given to this notice

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office

Lectures, original articles, and reports should be written on one side of the paper only, *and when accompanied by blocks it is requested that the name of the author, and if possible of the article, should be written on the blocks to facilitate identification*

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication

We cannot prescribe or recommend practitioners

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor"

Letters relating to the publication, sale, and advertising departments of THE LANCET should be addressed "To the Manager

We cannot undertake to return MSS not used

MANAGER'S NOTICES

THE INDEX AND TITLE-PAGE TO THE LANCET

January to June, 1916

IN view of the Government restrictions upon the supply of paper, and the shortage of paper quite apart from these restrictions, the Index and the Title-page to the volume of THE LANCET which was completed with the issue of June 24th have been printed separately, and copies have been supplied gratis to those subscribers who have, up to August 3rd, intimated to us their wish to receive them Other subscribers will be similarly supplied, so long as the stock remains unexhausted on application to the Manager, THE LANCET Office, 423, Strand, London W C Such application should please be sent in at once, direct to the Manager and not through Agents

Volumes and Cases

VOLUMES for the first half of the year 1916 are now ready Bound in cloth gilt lettered, price 16s, carriage extra

Cases for binding the half year's numbers are also ready Cloth, gilt lettered, price 2s, by post 2s 4d

To be obtained on application to the Manager, accompanied by remittance

TO SUBSCRIBERS

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423 Strand London, W C, are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c, should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Friday mails to all parts of the world

TO COLONIAL AND FOREIGN SUBSCRIBERS

Subscribers abroad are particularly requested to note the rates of subscriptions given on page 4

The Manager will be pleased to forward copies direct from the Offices to places abroad at the rates shown, whatever be the weight of any of the copies so supplied

NEWSPAPERS FOR NEUTRAL COUNTRIES

Newspapers are not at present being sent forward to neutral European countries unless posted direct from the office of publishers or newsagents who have obtained permission from the War Office for this purpose The Publisher of THE LANCET has obtained the required permission, and he will forward copies direct from the Office to any neutral country on receipt of instructions

The following magazines journals &c., have been received -

Practitioner Quarterly Journal of Microscopical Science Archives of Internal Medicine Journal of Surgery Journal of Physiology Journal of the Missouri State Medical Association Guy's Hospital Gazette Medical Journal of South Africa Journal of Obstetrics and Gynæcology

Communications, Letters, &c, have been received from—

A—Mr George F Aldous Plymouth Aymard Patent Milk Sterilizer Co, Ipswich A. R *Ardath Tobacco Co* Lond. Messrs Allen and Hanburys Lond. *American Medicine* New York Editor of, Messrs Arnold and Sons Lond

B—Messrs. W H Bailey and Son Lond. Messrs Butterworth and Co Lond British Thomson Houston Co Lond Manager of Messrs J Bale, Sons and Danielsson, Lond Messrs Butterworth and Co Lond.; Captain J A. Bennett, R A M C Mr R Brooks King Widcombe, Mr D C Biggs Lond Sir Wm. Bennett K C V O Lond Messrs Chas Birchall Liverpool Mr Wm Bryce, Edinburgh Dr C A Bucklin Glasgow Major Judson Bury R A.M C (T) Dr A G Bateman Lond Mr E J Burdon Lond

C—Mr Mark Chaplin St. John's Newfoundland Central Control Board (Liquor Traffic) Lond. Secretary of Messrs J and A Churchill Lond Dr Leonard Colebrook Lond City Hospital for Diseases of the Skin and Cancer Dublin Secretary of Messrs Carling and Co Lond.; Dr Geoffrey Cowan, Thetford Dr W S Colman Lond Messrs E Cook and Co Lond Messrs J Crosfield and Sons, Warrington Caterham Sanitarium and Surrey Hills Hydropathic, Caterham Secretary of Dr H R Coston Birmingham, U S A. Captain Frank Cook R A.M C Sir John Collie Lond Cardiff Medical Officer of Health of Coal By Products Co, Lond. General Manager of

D—Dr Leonard S Dudgeon Lond Captain C R Denny R.A.M C France Messrs W Dawson and Sons Lond, Dr J Davison Bournemouth Dublin School of Physic, Secretary of Dundee Royal Infirmary Medical Superintendent of Devonshire Hospital Buxton General Superintendent of; Mr H Dickinson Lond.

E.—Surgeon Geoffrey Evans R N;

F—Miss Emily B Forster Lond Brevet Colonel M Fell Ulverston Messrs H Frowde and Hodder and Stoughton Lond; Messrs Fairchild Bros & Foster Lond Fellows Medical Manufacturing Co New York; Dr A O M Fehrsen Potgieters Rust

G—Dr Joseph Griffiths Cambridge Dr A Grimberg Paris Garden Cities and Town Planning Association Lond. Secretary of Guy's Hospital Medical School Lond Acting Dean of Grimsby and District Hospital Grimsby Secretary of Dr E E Glynn Liverpool Glasgow Royal Infirmary Secretary of Messrs Charles Griffin and Co Lond. Messrs Godwin and Co., Winchester Lieutenant J F Gill R A. M C; Dr A F Galloway Lond Mrs M Grieve Chalfont St Peter

H—Mr H L. Harris New York Major F W Higgs R.A.M C (T) Mr Walter Hurst Glasgow Messrs Hirschfeld Bros Lond. Messrs. Hooper and Batty Lond Harrogate Baths General Manager of Mr J H Hollyer Droitwich; Dr F Hernaman Johnson Lond. Messrs C J Hewett and Son, Lond. Mr H Stocker Harris Esher Dr J M Hobson Lond Huddersfield Corporation Medical Officer of Health of Hospital for Consumption Brompton Secretary of Dr A.C Houston Lond

I.—*Insurance Committee for the County of London*, The I L High-class Cigarette Manufacturing Co, Lond

J—*Justice*, Lond. Editor of Jessop Hospital for Women Sheffield Secretary of

K.—Mr Charles Krumwiede jun New York.

L—Local Government Board Lond. Leeds Public Dispensary Secretary of Messrs H K Lewis and Co Lond Messrs Lamley and Co Lond Messrs E and S Livingstone, Edinburgh Dr J Lichtenburg New York Lord Derby War Hospital Warrington Administrator of Lady Leishman Eastbourne Mr P Lockhart Mummery Lond Messrs Lee and Martin Birmingham Dr Robert Lee West Drayton Mr L. Leyon Neuilly sur Seine

M—Messrs Maconochie Bros Lond. The Murray Perth Secretary of; Metropolitan Ear Throat, &c Hospital Secretary of Macmillan Company of Canada Toronto Dr C W Paget Moffat Bolton Dr J A. Murray Lond; Mr J E R McDonagh Lond. Manchester Memorial Jewish Hospital Secretary of Manchester Clerical &c Association; Manchester Royal Eye Hospital Secretary of Mrs E S Michell Cambridge Mr William Morris Bala Mr A. C Mulkern Norbiton Medical Defence Union Lond General Secretary of Dr Alexander Morison Lond Captain J C McWalter Dublin

N—Mr T S Nightingale C M G, Lond National Association for the Prevention of Consumption Lond., Honorary Secretary of *Newspaper World* Lond

O—Oxford Eye Hospital Acting Honorary Secretary of Mr G R Oliver Lond Dr J A Ormerod Lond

P—Dr S G Papadopoulos Lond. Fleet-Surgeon A. M Page R N Preston Royal Infirmary Secretary of Messrs Parke Davis and Co Lond Dr E B Prest New Cumnock Dr M F Porter, Fort Wayne Dr A. G Phear Lond

R.—Mr H Robinson Preston Messrs Richardson and Co Lond Messrs E J Reid and Co, Lond Mrs Roche Rochdale Royal Microscopical Society Lond Assistant Secretary of Mr B Rix Tunbridge Wells Dr H F Renton Oldham Dr J D Rolleston Lond.; Dr J W Rob Weybridge

S—Dr J S B Stopford Manchester; Mr W M Stewart, Barkly West Society of Public Analysts Lond Honorary Secretary of Messrs Spiers and Pond Lond. Mr P Sharp Newcastle-on Tyne Sheffield Corporation Medical Officer of Health to the Messrs J Smith, Lond Mr C W *Simmons New York* Messrs G Street and Co, Lond. Dr Herbert Smith Sudbury Smith's Advertising Agency Lond., Lieutenant E A Seale R.A M.C; St Mary's Hospital Medical School Librarian of Staffordshire Wolverhampton and Dudley Joint Committee for Tuberculosis Stafford Medical Officer of Mr H R Saunders New York Dr S Sloan Gloucester; Dr W T Scott, Banchory School of Physic Dublin, Registrar of Mr J H Shaw Southport Dr T W Shore Lond Dr R H Steen Dartford Mr J Barker Smith Lond. Dr E W Scripture Lond. Society for the State Registration of Trained Nurses Lond, Honorary Secretary of

T—Messrs W Thacker and Co Lond Temperance Legislation League, Lond Secretary of; Dr Robert Turner Liverpool Mr C Polhill Turner Croydon; L. J G Townsend Lond. Sir John Tweedy Lond.

U—University College of South Wales Cardiff Registrar of University of Liverpool, Dean of the Faculty of Medicine of

V—Mr Magnus Volk Brighton.

W—Dr W A. Winter Dublin; Willesden Urban District Council, Medical Officer of Health to the Mr J Welch Henfield; Mr R L Wason Bath Messrs J Wright and Sons Bristol; West Kent General Hospital Maidstone Secretary of Captain E W Ainley Walker Lieutenant Colonel G Wherry R A.M C (T) Mr George Wilson Lond. Messrs R. F White and Son, Lond. Walker Gordon Laboratories Lond; Mr H. Walker Leeds; Messrs W Wood and Co New York Mr Robert Whitelaw Aberdeen Dr L. A. Weatherly Bournemouth West London Hospital Post-graduate College Dean of Mrs C L Welchman Lond

Letters, each with enclosure, are also acknowledged from—

A.—Messrs John Armstrong Lond A. W T; A. J R

B—Mr T Bird Lond; Dr T F Bamford Manchester; British Medical Association Secretary of the Malta Branch Brighton Corporation Accountant to the Bristol Royal Infirmary Secretary of Captain C A Baragar C A M C Lond Captain G V Bedford C A M C; Dr R. W Beesley Bolton British Oxygen Co, Lond.

C—Messrs Corbyn Stacey and Co Lond; Messrs Carnrick and Co Lond Mr P A. Colmer Yeovil Messrs Cutting and Underwood Lond Messrs Clay Paget and Co Lond; Croydon General Hospital Secretary of Casein Ltd Lond; Messrs J and A. Carter Lond; Messrs Carling and Co Lond

D—Mr D Le Bas Epsom Dr P W Black Lond. Mr D Lloyd Davies Lond; Messrs Damancy and Co Harrow D V The Dorland Agency Lond. Dr W Donaldson Flotta.

E.—Messrs Elliott and Sons Barnet East Sussex Hospital Hastings Secretary of Edgar Allen Institute Sheffield Secretary of Mr Hugh Ealand Farnham

F—Dr Feltgen Dombasle Mrs Franklin Ilford; Mr L S Forbes Hessle

G—Mr J F Gell Nottingham Gravesend Hospital, Secretary of Messrs Grantham and Co, Reading; G S

H.—Dr J P Hill Stowmarket Messrs. Howard and Sons Ilford Messrs. J Haddon and Co Lond. Mr M Hooper Lond. Messrs Hogg and Son Lond; H P M H L. E; H R H Tooting

I—Miss Inderwick Lond

J—Mr L M Bowen Jones Carmarthen J I J

K—Kreochyle Co Lond, King Edward VII Hospital Cardiff Secretary of Miss Kavanagh Lond

L.—Liverpool and District Trained Midwives Association Secretary of Dr J A. Lloyd Dundee Dr J Landsborough Tighnabruaich Messrs Lever Bros Port Sunlight Dr J C Lee St Leonards on Sea London Hospital Medical College Secretary of Leeds General Infirmary Secretary of

M—Lieutenant Colonel Masani Caterham; Maltine Manufacturing Co Lond Dr J Kerr Muir Brakpan Manchester Corporation Accountant to the Dr L. J Minter Brighton Manchester Royal Infirmary Secretary of Dr J L. Moir Congleton Medical Officer Sunderland Dr M B Murphy Bradford Lieutenant Colonel MacLaughlin, Portrush

N—Messrs Newton Chambers and Co Thorncliffe

O—Lieutenant J R Orchard R.A.M C France Mr T T O Farrell Dublin

P—Mrs Pannett Liss P D D Messrs Pollard and Bird, Edinburgh

R—Messrs Raimes and Co York Royal Hants County Hospital Winchester Secretary of; Dr M J Ryan Crumlin Lieutenant A Reid R A.M C Messrs Roberts and Co Lond. Miss L Rattray Haslemere Royal Medical Benevolent Fund, Lond Secretary of

S—South Devon and East Cornwall Hospital, Plymouth Secretary of Miss Steegmann ... Captain F Sprawson R.A.M C Lond; St Andrew's Hospital Northampton St John Ambulance Association Lond. Secretary of Dr C Lawson ... Hertford St Mary's H... Manchester Secretary of Lieutenant A Sunderland R.A.M C France Mr R. Smith ... chester Miss R Str... Lond Mr M Schaerer ...

V—Messrs Van Houten L...

W—Dr H Willis Lond. ... London Post-Graduate C... Secretary of Warneford H... pital Leamington Secretary ... Dr W H O Woods Sw... W D H Mr G Wilson, L...

Observations

ON

THE EFFECTS OF TRI-NITRO TOLUENE ON WOMEN WORKERS

By AGNES LIVINGSTONE-LEARMONTH, M B, CH.B EDIN,

AND

BARBARA MARTIN CUNNINGHAM, M D EDIN.

DURING the past five months we have made careful notes of the symptoms complained of by women working on tri nitro-toluene (or for brevity T N T) in the munition factories in which we have been acting as women medical officers There some hundreds of women come into contact with T N T in its various forms We are convinced that the frequency with which these symptoms occur among the workers cannot be mere coincidence and must point to irritation by, and absorption of some toxic product of the explosive used The work necessitates intimate handling of the powder, and the more floury or fine the powder the greater the amount of dust in the air of the shop The symptoms complained of may be roughly divided into two classes—viz, irritative and toxic

I IRRITATIVE SYMPTOMS

The irritative symptoms may be classed in groups as they occur in the respiratory tract, the digestive tract, and the skin.

A *Respiratory tract, symptoms referred to the inhalation of dust*—Nasal discomfort sneezing and occasional bleeding running of the nose preceded by a stuffed dry feeling occur Smarting burning and sometimes watering of the eyes may accompany these symptoms Severe frontal headache is often complained of due probably to nasal obstruction. The throat often feels tight sore, swollen, and burning The chest feels heavy and 'tight' Frequently a feeling of intense suffocation is complained of and a pain "like a lump behind the sternum is very common This pain is sometimes described as a "heaviness' or as a red hot lump and is occasionally referred to behind the shoulders These respiratory symptoms have been noticed after only one night on the floury type of powder Some workers complain of dry cough, followed by sputum described as a thick yellow phlegm with a bitter taste In one case the cough was definitely paroxysmal and only relieved by the expulsion of a thick bleb of the phlegm referred to The irritative symptoms although naturally to be met as far as possible by the adoption of every reasonable precaution, are almost invariably quickly recovered from on transference to other work and in many cases even change of work is unnecessary as recovery is so rapid with suitable treatment

B *Symptoms referred to the alimentary tract*—Constant bitter taste in the mouth with consequent distaste for tea, is complained of Temporary increase of appetite is most marked, many workers stating that they could eat two dinners Some women improve greatly in appearance for a time owing no doubt to the increase in appetite Pain round the waist and in the abdomen is frequent Almost invariably when asked to point out the site of the pain the patient will place the hands across the body over the region of the liver stomach, and diaphragm The pain is spasmodic and griping in nature and is accompanied by nausea and often by vomiting The vomit is described as intensely bitter often yellow and sometimes green Acid eructations are frequent Constipation is the rule at first but later diarrhœa with motions "as green as grass and with pain and tenesmus is more common. Griping intestinal pains are also met with

C *Symptoms referred to the skin*—Rashes are fairly common especially among the newer workers they are generally situated on the face hands and neck but are seen on the feet and even on the thighs of workers who are careless of washing the hands before going to the water closet. The rashes on the hands are of two kinds (1) a cheiropompholyx type seen on the webs of the fingers and on the palms of the hands, and (2) discrete red papules on the backs of the hands and wrists These may become eczematous from scratching and infection The eruptions on the face are also of two kinds (1) red papules as on the hands, and (2) a blotchy irregular erythema Both forms are intensely itchy, and often prevent sleep Fine desquamation follows the rash and in rare cases the skin is exfoliated in large flakes from the hands and feet The rashes have been placed among irritative symptoms as they occur on parts exposed to contact with the powder the frequency of occurrence on neck and wrists being due to the friction of dust-infected garments A similar rash will occur round the mouth of a worker who wears a respirator that is not frequently cleaned Excessive sweating increases the susceptibility of the skin and may promote absorption We have noticed that in those who perspire much or freely the symptoms are more severe Workers on amatol and crude T N T blocks suffer from the same kind of rashes owing to the friability of the blocks

II TOXIC SYMPTOMS

Many of the workers who have suffered in varying degrees from irritative symptoms will if kept on T N T, develop what seem to be signs of toxæmia These toxic symptoms may be roughly classified under four heads (*a*) digestive, (*b*) circulatory (*c*) cerebral and (*d*) special

(*a*) *Digestive symptoms*—These include continuous "bilious attacks' nausea, bilious vomiting anorexia constipation and jaundice A dull aching or burning pain behind the ensiform is very common and persists throughout In spite of the gastric symptoms, the tongue is very often clean and moist, though most workers complain of the constant bitter taste in the mouth

(*b*) *Circulatory symptoms*—Under this head have been noticed faintness, giddiness hot and cold flushes pallor, slight cyanosis bradycardia, occasional palpitation air hunger, and swelling of the hands and feet Two workers with no other ill effects showed us several large "bruises" on the thighs and arms, not to be accounted for by any external injury

(*c*) *Cerebral symptoms*—Drowsiness is very common, and many workers describe it as a sort of drugged feeling Depression, lassitude, and apathy are common. Transient loss of memory, slight disorders of sight (blurred vision &c) and a certain amount of transient peripheral neuritis have been noted in several of our cases In severe cases delirium coma and convulsions occur towards the end.

(*d*) *Special symptoms*—Irregular scanty menstruation is frequently complained of Dark coloured scanty urine with occasional scalding on micturition has been noted in many cases

In most cases the toxic symptoms develop gradually but in a few there would appear to be a distinct predisposition to poisoning and in these the toxic effects manifest themselves quite suddenly Judging from our series of cases, the following persons would appear to be unduly susceptible (*a*) Women inclined to anæmia, (*b*) those who have had previous gastric or liver trouble, (*c*) those who sweat freely or who are unclean in person, (*d*) alcoholics and those who are even slightly addicted to alcohol, (*e*) those who have had previous throat or chest trouble, and (*f*) persons of lowered vitality from over fatigue, malnutrition, &c

From our observations we are convinced that the careful selection of suitable workers is of the greatest importance, and that women suffering from the physical disabilities mentioned above should be excluded.

It is curious that there seems to be as it were no constant relationship between the severity of the symptoms complained of and the ultimate issue of the case A worker with severe gastric derangement when taken off T N T may completely recover in a short time, whereas slight loss of appetite and lassitude may (although the worker is removed from all contact with the powder) prove the gateway to serious illness and physical disaster A patient too, may be jaundiced for some time and present no more symptoms than are seen in a simple catarrhal jaundice until a week or so from the end, so far as our limited experience of the serious cases enables us to judge. In most cases transference to other work led to rapid recovery, in a few instances the patient had to be confined to bed for a few days and in only one case did the toxæmia end in death in our series of cases

TREATMENT

Treatment would naturally fall under two heads—viz., (I.) prophylactic, and (II.) symptomatic.

I. *Prophylactic Treatment.*

As the irritative symptoms were considered in three groups, it seems suitable to discuss the prophylaxis from the same aspects.

(*a*) *Respiratory prophylaxis.*—Adequate ventilation for the workshops is essential. The air must be frequently changed and equable in temperature, and the circulation of dust should be avoided. The more skilful the worker the less dust raised. We have noticed that in a steam heated work shop on a winter night or on a damp summer night the symptoms appear more rapidly and are more severe. In our opinion this would point to the possibility of a volatile product given off under certain conditions of temperature and moisture. Many workers have told us that the powder affects them more when on night work.

To prevent the inhalation of dust veils and respirators are worn, but to both of these are attached disadvantages. Respirators need frequent cleaning, lest their edges, being in contact with a moistened epidermis, cause a rash. Veils are dazzling to the eyes at night, and unless held off the face by a hat-brim are in too close contact with the skin. If veils are worn brown or green has been found to be the most suitable colour.

If the above suggestion is correct that a volatile product is given off under certain conditions of heat and moisture, may not respirators, with their accompanying increase of both heat and moisture, be rather a source of extra danger? In the fatal case of poisoning to be shortly quoted we found that the worker had invariably worn her veil and respirator, and was, in fact, the only worker in that shop who consistently did so. It has been suggested that respirators, if worn, should be impregnated with some alkaline antidote.

(*b*) *Alimentary prophylaxis.*—One of the most important of the preventive measures is the provision of suitable and sufficient food at proper intervals. The average working woman does not eat a "working man's breakfast," because (1) it is not her habit, (2) the hour of rising to catch her train is too early, or (3) the food has to be prepared by herself. Therefore she drinks a hasty cup of tea and, after an hour or more of a journey to the factory, starts work on a practically empty stomach. The provision of fresh milk or cocoa at the factory on arrival should be insisted on, and we have noted the marked improvement in the worker since the introduction of a ten minutes' break in the middle of the morning for a "snack."

Workers should be encouraged to eat hot dinners, and canteens to supply these are indispensable. Night workers find lighter meals, such as sandwiches, milk puddings, and stewed fruit most easily digested. Indeed, the most suitable diet for all T N T workers consists of fish, milk, fresh vegetables, and fruit. The women tell us they find that highly seasoned dishes, such as curries, tinned foods, and pickles, should be avoided, and that such "bring out the rash."

Bland drinks such as barley water, milk and water or milk and soda, are useful especially in hot weather and at night. Most workers do not drink nearly enough. Alcohol in every form is discouraged, and all workers are warned against constipation.

(*c*) *Integumentary prophylaxis.*—Our workers use a simple powder for their faces and hands. Veils also protect the face, and gauntlet gloves should be worn, but they should be intact and free from powder inside and the gauntlet must be tucked inside the overall cuff. Overalls and caps are essential, the overall to fit completely round the neck and to cover the whole person of the worker. Frequent washing of these garments must be insisted upon. It has been suggested that they be cleaned by vacuum thus getting rid of the contained power entirely. Open work stockings should be forbidden. The hair should be completely hidden by the cap. Workers who are continually pushing back "curls" are very apt to develop the rash on the face and the eye symptoms. Working clothes should if possible be changed on returning home and underclothing should frequently be changed. Personal cleanliness is a great factor in prophylaxis.

The pink discolouration seen on the clothing of those who sweat freely is probably due to some substance excreted in the sweat. One worker, some time after removal from contact with T N T, having bathed several times perspired so freely that her fresh clothing, and even the sheets, were coloured pink. We have noticed, however, that dirty overalls used in the shops also turn pink when washed.

It may be of interest to note that one worker who had toothache, having filled her mouth with white loaf bread soaked in water to act as a poultice, was considerably alarmed on removing it to find that every particle of the bread had turned pink, and no bleeding had, of course, taken place!

Suggestions as to Special Prophylaxis.

1. No person under the age of 21 or over 40 should be employed on T N T.

2. Employment should be alternated. The period of exposure to the powder should not exceed 12 weeks but in many cases this has been found to be too long. We have found that in some workers the effects of the toxin seem to be latent and although some women have worked for weeks on T N T without any apparent ill effects, they have developed slight symptoms after being transferred to other work. On the other hand, others after recovering from early symptoms, have finished the 12 weeks and had no further ill effects. Again, a few have shown a special idiosyncrasy and after a few days at the work have had to be permanently transferred.

3. The total daily exposure to the toxin must not be too long. Knowing, as we do that fatigue induced by whatever cause (overtime, malnutrition, &c.), markedly diminishes the power of the body to overcome toxins, we are of opinion that the daily exposure should not exceed eight hours. Longer exposure means increased chance of absorption when the blood is in a devitalised condition.

4. The provision of suitable washing accommodation at the factories and facilities for warm (not hot) baths for workers, together with arrangements for comfortable lodgings near their work, are of the utmost importance, as also are canteens to provide well cooked healthy food. Knowing, as we do, that "not absence of exposure but strength of resistance keeps us well," these things must be strongly insisted upon.

5. A routine weekly examination of all T N T workers is essential, so that any who show signs of over fatigue, anæmia, &c., may be taken off the work, at least for a time.

6. Work on T N T should be restricted to the day time. If our information and observations are correct, that the effects of the powder are more felt on night-work, the work should be discontinued at night. It is certain that the ventilation is less free at night partly owing to the air being too cold to allow of opening the windows freely, and in great part also owing to war conditions which necessitate the darkening of factory windows at night.

II. *Symptomatic Treatment.*

A. *Of the irritative symptoms.*—(*a*) Nasal &c. For these the usual remedial measures are adopted—viz. boracic lotion for the eyes, simple gargles for the throat and expectorant mixtures for the cough. Those who suffer from the choking feeling improve with plenty of fresh air. (*b*) Gastro-intestinal. We have invariably given sodium bicarbonate for the gastric and biliary symptoms and have found it satisfactory. A supply is kept in the dressing rooms of the factories and given to any worker complaining of abdominal discomfort. For constipation, white mixture occasionally preceded by calomel or colocynth is our routine treatment. For diarrhœa we give a bismuth and soda mixture and for the abdominal pain nothing has been found so effective as sodium bicarbonate. (*c*) Skin rashes. We have found the skin conditions very amenable to any simple emollient, such as zinc and bismuth ointment, tragacanth and glycerine liniment or boro-calamine lotion, the patient of course being temporarily removed from the work on T N T.

B. *Of the toxic symptoms.*—The slightest cases of toxæmia are removed from all contact with T N T till all symptoms have disappeared, and the more severe are transferred permanently from that department. For anæmia, mist ferri et ammon cit is given, unless constipation accompanies it when mist ferri laxans is substituted. For faintness, giddiness and nausea a mixture containing sod bicarb, spt. ammon aromat and gentian is useful. For nervousness perspiration and flushing we use a quinine tonic and for slight jaundice a mixture containing sod salicyl and sod bicarb. In all toxic cases a more or less open air life is advised until the symptoms pass. The diet should be light. Milk in all forms and large bowls of bread and milk are most

comforting As drinks, whey, milk and soda barley-water, and rice water Fish vegetables (especially green ones), and fruit, such as apples and oranges, should be ordered.

Of the severe cases of toxemia, merging suddenly into profound jaundice, delirium and death, we have had less experience. The treatment of such aims at stimulating the liver functions and getting rid of the excreted bile both by drugs and hydrotherapy We have tried linseed and mustard poultices to the liver rectal and subcutaneous injections of saline solution, and hot baths, but so far with no permanent success

As a simple cardiac stimulant spt. ammon aromat was useful but in severe cardiac depression pituitrin was found to be the most suitable drug

The following tables show the frequency of the most common symptoms and notes are given of a few typical cases

TABLE I.—*Showing the Most Typical Symptoms in 12 Workers on T N T for 1 Week to 2 Weeks*

Case	1	2	3	4	5	6	7	8	9	10	11	12
Age	21	34	24	20	23	21	38	23	33	25	22	23
Married or single	S	S	S	S	S	M	M	M	M	M	S	S
Home or lodgings	H	H	H	H	H	—	H	H	H	H	H	H
Journey in hours	1	1	1	1	½	—	1	1	½	1	1	1½
Symptoms—												
Throat	P	P	P	P	—	—	—	P	—	—	—	—
Cough	—	—	—	P	—	—	—	—	—	—	—	—
Sneezing	P	P	P	—	P	P	—	P	P	—	—	—
Eye	P	—	—	P	P	P	—	—	—	P	—	—
Rash	P	—	P	P	P	—	—	—	P	—	P	—
Nausea	P	P	—	P	P	P	P	—	—	P	P	P
Pains	P	P	P	P	—	P	P	—	—	P	—	P
Vomiting	P	P	—	P	—	P	P	—	—	—	—	—
Constipation or diarrhœa	—	—	—	—	—	C	—	—	—	C	—	C
Headache	—	P	P	—	—	P	—	—	P	P	—	P
Giddiness	—	—	—	—	—	P	—	—	—	—	—	—
Faintness	—	—	—	—	—	P	—	—	—	—	—	—
Jaundice	—	—	—	—	—	P	—	—	—	—	—	—

P = Present

TABLE II.—*Showing the Most Typical Symptoms in 12 Cases with Slight Poisoning Symptoms after from 4 to 6 Weeks' Work on T N T*

Case	1	2	3	4	5	6	7	8	9	10	11	12
Age	21	34	45	25	35	39	25	27	25	25	37	25
Married or single	S	M	M	M	M	M	S	S	S	M	S	S
Home or lodgings	H	H	H	H	H	H	L	L	H	H	H	H
Food satisfactory or not	S	S	S	S	S	S	S	S	S	N	S	S
Journey in hours	1/6	1¼	1	1½	1	½	1¼	1	1/6	½	½	1/6
Symptoms—												
Throat	—	—	—	—	—	—	P	—	P	P	—	—
Cough	—	—	—	—	—	P	P	—	—	—	—	P
Sneezing	P	P	P	P	P	—	P	—	—	—	—	—
Eye	—	—	—	P	—	—	—	—	—	P	—	P
Rash	—	P	P	—	P	—	—	P	—	—	P	P
Nausea	P	—	P	P	—	—	P	P	P	P	P	P
Pains	P	P	P	P	P	P	P	—	P	P	—	P
Vomiting	—	—	—	—	—	—	P	P	—	—	P	P
Constipation or diarrhœa	—	—	—	—	—	D	C	C	—	C	C	C
Headache	P	—	—	P	—	—	—	—	P	P	P	—
Giddiness	—	—	—	—	—	—	—	—	—	P	P	—
Faintness	—	—	—	—	—	—	—	—	P	—	—	P
Depression	—	—	—	—	—	—	P	—	—	—	—	P
Jaundice	—	—	—	—	—	—	—	—	—	—	P	P
Cyanosis	—	—	—	—	—	—	—	—	—	—	P	—

TABLE III.—*Showing the Most Frequent Symptoms in 12 Workers on T N T for 8 to 12 Weeks*

Case	1	2	3	4	5	6	7	8	9	10	11	12
Age	35	29	34	31	29	23	25	33	27	39	34	35
Married or single	M	S	M	M	S	M	M	M	S	M	M	M
Home or lodgings	H	H	H	H	H	H	H	H	H	H	H	H
Food, satisfactory or not	S	S	S	N	S	S	S	S	S	S	N	S
Journey in hours	2	1½	1	½	1	½	1/6	1½	1/6	½	1	1
Symptoms—												
Throat	P	P	—	P	—	P	P	P	P	—	—	P
Cough	—	P	—	—	—	—	P	—	—	—	—	—
Sneezing	—	P	—	—	—	P	—	—	—	P	—	—
Eye	—	—	—	—	—	—	P	—	—	—	P	—
Rash	—	P	—	—	—	P	—	P	—	—	P	P
Nausea	P	—	P	P	P	P	—	P	P	P	—	P
Pains	P	—	—	P	P	P	—	P	P	P	—	—
Vomiting	—	—	—	P	P	P	—	—	—	—	—	P
Constipation or diarrhœa	C	D	C	C	D	—	C	—	C	C	—	D
Headache	P	P	P	P	P	P	—	P	P	P	P	—
Giddiness	P	—	P	—	—	—	—	P	—	—	P	P
Faintness	—	P	—	P	—	—	—	P	P	P	—	—
Depression	—	—	—	—	—	—	—	—	P	—	—	—
Jaundice	P	—	P	—	—	—	—	—	—	—	—	—
Cyanosis	—	—	—	—	P	—	—	—	P	P	—	—

CASE 1 —Slight early symptoms with complete recovery Patient aged 32 married Time at work on T N T, 10 weeks When examined before starting work in February 1916, she was quite fit physically May 17th First visit to the surgery Complaint Sickness and pains Symptoms Eyes sore and burning, throat dry and sore, nose running, no rash, slight palpitation severe, griping girdle pain and pain behind sternum, griping abdominal pain, nausea and sickness with green, bitter vomit Has had nausea for two weeks and great thirst Slight constipation, menses regular Two nights ago rash all over chest and neck, but cleared next day Tongue clean, lips dry gums normal, skin normal, hands very yellow, heart normal, lungs normal Wears cap and overall, veil, respirator and gloves Recovered quickly with appropriate treatment Did not need to be taken off work June 29th Still on T N T Perfectly well Has had no further discomfort

CASE 2 —More severe symptoms, transfer, complete recovery Patient aged 37 single Time at work on T N T four weeks When examined before starting work on T N T she was quite fit physically April 27th First visit to the surgery Complaint Sickness, diarrhœa, severe headache Symptoms Has never felt well on T N T After three days' "bilious attack," took salts and went to her own medical attendant No better so sent to surgery Kept having turns of diarrhœa and sickness, and vomited oily stuff "just like castor oil, only all green and very bitter" Vomited four or five times a day Diarrhœa accompanied by severe pain and tenesmus Felt worse on flowery powder Said it "almost seems to drug you," and "you could go to sleep if you didn't keep a good hold on yourself Tight chest, tickling cough throat sore from retching Condition Face pale flabby, eyes normal conjunctivæ pale, tongue dirty yellow, lips slightly blue, fading rash on face, skin itchy on face only, hands slightly yellow, not much perspiration, heart normal, pulse 70 Said she coughed up a lot of sticky yellow bitter phlegm in the morning

Treatment Taken off work Soda bismuth, spt ammon aromat May 1st Much better colour, occasional severe pain still has headache, cough bad phlegm as before 4th Much better, pain gone, diarrhœa gone cough easier, chest still tight Resumed duty to-day but kept off T N T for a month Given tonics 26th Returned asking to go back to T N T Still pale, cough not quite gone eating better Request refused. Given transfer to other work Not to return to explosives June 29th Quite well Good colour, good appetite, good spirits

CASE 3 —Severe jaundice ending in death Patient aged 25 single Time at work on T N T five weeks Admitted to the munition works on April 12th 1916 Taken off T N T on May 17th and off work on the 31st Died on June 18th

Previous health Patient was always "strong" Her only illness had been diphtheria at the age of 7 years Never had any digestive trouble, and had never suffered from anæmia When examined before starting work in April she was found to be quite fit physically

The patient paid her first visit to the surgery on May 17th Complained of "sickness" Duration, one week. No throat symptoms Running at the nose, eyes felt sore, pain behind the sternum nausea, vomiting of sour green fluid, itching of the skin of the chest, free perspiration loss of appetite, slight constipation She felt dull 22nd Attended at surgery Felt better Sickness gone The burning pain at ensiform still present 26th Pain in the stomach Vomited to-day Conjunctivæ very yellow Tongue clean 31st Attended at the surgery Was sent up by medical officer at his routine visit as she was noticed to be jaundiced Felt languid and 'nasty", had occasional epigastric pains Tongue clean lips a good colour, pulse 92, heart not enlarged, liver not enlarged upper border at fifth rib, lower border at costal margin in nipple line Refused to come into hospital June 2nd Admitted into hospital Markedly jaundiced, tenderness over liver, bowels constipated, pulse slow low tension, occasionally intermittent urine faintly alkaline, specific gravity 1012, darkish amber, no albumin, no sugar no free bile From this date to June 8th no fresh symptoms were noted, but the intensity of the jaundice and the frequency of the vomiting varied. The urine was examined daily, and from June 8th it showed the presence of bile pigments, but never sugar or albumin The stools were clay coloured and the bowels constipated Pain was frequent over the epigastrium, and tenderness over the liver The patient became drowsy and more deeply jaundiced on the 8th, and menstruation started. On the 11th she was distinctly better, and was brighter The bowels were moved twice 14th Was sick and faint after an enema Pulse intermittent, stools slightly bile-stained. 15th Irritable otherwise as before 16th Restless during the night, depressed, pupils semi-dilated and sluggish to light liver percussion normal, but lower edge very thin and firm and felt like cartilage, and was tender to the touch At 1.30 P.M. the patient was very drowsy She fell asleep while eating an orange During the

afternoon she became much brighter and felt better, but at 8 P M she vomited dark and bright blood, became restless and shortly afterwards was unconscious She was still unconscious and delirious at 11 P M She bit, kicked, and scratched if touched There was incontinence of urine and fæces during the night 17th The patient was still unconscious A catheter was passed and 20 oz of urine were withdrawn (constituents as before) Slight cyanosis was noticed, also gnashing of the teeth and clenching of the hands during the evening 18th Had a very bad night Convulsive attacks occurred along with retraction of the head These continued, and with incontinence of urine and fæces and deep cyanosis led up to death in the afternoon

The pulse until the day of death was slow, about 60 per minute, of low tension, and occasionally intermittent The liver dullness remained unchanged, although the jaundice varied considerably The blood was examined on several occasions Blood count Red corpuscles, 4 000,000, white corpuscles, 9320, hæmoglobin, 60 per cent (50 per cent on day of death) The red cells were well formed, and stained with light granulation No nucleated red cells were present The white cells were normal Methæmoglobin was absent on both occasions on which it was tested for

Post mortem findings—Body well nourished Skin lemon yellow, but showed no hæmorrhages All tissues and organs similarly stained Mesentery showed numerous small hæmorrhages, as did also the stomach and intestine Stomach and upper part of intestine contained altered blood Lungs Markedly congested Showed slight hæmorrhages Heart Normal size but very flabby, empty, muscle pale yellow Liver Greatly decreased in size, weight, 1 lb 12 oz, left lobe shrunken thin, and leathery, right lobe mottled in appearance, with large raised, blotchy patches alternating with smaller shrunken areas It cut firmly Naked eye appearance of cut section seemed that of a fine fibrosis Gall duct patent, as was bile duct also Kidneys very large and pale, weight, 6½ oz each Spleen slightly congested Bladder normal Uterus and appendages normal

We give only a synopsis of our clinical notes Obviously, it is impossible in the present state of our knowledge of the action of the poison to differentiate between those symptoms that are to be attributed directly to the toxin and those that are secondary or of subsidiary importance

An Address

ON

THE PSYCHO-PATHOLOGY OF THE WAR NEUROSES

Delivered at the Malta Medical Conference on April 9th, 1916,

BY M D EDER, B Sc LOND, M R C S, L R C P LOND,

TEMPORARY CAPTAIN R A M C, LATE MEDICAL OFFICER IN CHARGE OF PSYCHO NEUROLOGICAL DEPARTMENT MALTA

GENTLEMEN,—From the combatant's point of view this has been described as industrial warfare, from the medical point of view it might be well characterised as nerve warfare, for an outstanding feature has been the large number of soldiers, both on our side and so far as I can judge from the scanty references to the German literature that I have seen on that of our enemies also who have suffered from what are very properly called functional disorders, with or without injury or organic disease Of such patients 110 have come under my own notice, a study of the material will be I hope, not only a contribution to our knowledge of the psycho neuroses but perhaps a help to an understanding of the psychology of the soldier

Colonel Garrod remarked a fortnight ago in a paper on the ductless glands in war that clinical observation has largely contributed towards our knowledge of the physiology of these organs, and I vividly recall how my honoured teacher, the late Dr Samuel Gee used to insist that "physiology is best learnt at the bed side and on the post mortem table" (It is put rather differently I believe in his collected aphorisms) It is equally true of the science of psychology the study of abnormal psychology carried on during the last two decades has given us a better insight into the mind of man than ever seemed possible by the academic methods—which still remain largely academic It is to four men above all that we are indebted for this wider knowledge—Freud of Vienna, Jung of Zürich Janet of Paris, and Morton Prince of Boston

I would insist at the outset that we are dealing with the mind this afternoon, we are to seek an understanding of certain phenomena in terms of the mind An investigation from the physiological side would doubtless be profitable enough but that is not my role Moreover, it happens limited as is our knowledge, that we know here more about mental than we do about physiological processes.

The Working of the Unconscious Mind

Psychological facts have a value other than medical facts Take for instance, the analgesias and anæsthesias so common an occurrence in hysterical troubles Some would have it, Babinski for instance, that this analgesia is invariably produced by medical investigation Its production in this wise would be no less a psychological fact demanding understanding than its presence apart from such investigation The psychologist must be of course, alive to the possibility of this occurrence I will begin by the communication of a case of this kind

CASE 1 (Case number 34)[1]—An Irish soldier aged 23 was admitted to hospital on Jan 26th 1916, for hysterical contracture of the right hand The fingers were semiflexed and could not be passively extended (We are not now concerning ourselves with the diagnosis but I may add that in nearly every case I shall quote the diagnosis was established or confirmed by Colonel Purves Stewart, A M S) Colonel Purves Stewart who examined the patient a couple of days before, has the following note "To pin pricks and cotton wool anæsthesia analgesia of the whole of the right upper limb as high as the shoulder At the beginning of the examination patient felt pin pricks at wrist As examination continued the boundary of anæsthesia steadily increased until it reached the shoulder by which time the previous sensitive spots were now anæsthetic Further examination showed a complete right hemianæsthesia

The patient was a left handed man who was wounded on Dec 22nd by 15 bayonet wounds 14 of which were on the right side of the body On Dec 22nd he was in the trenches with 23 men when they were attacked by some 200 Turks He and a sergeant leaped out of the trenches and engaged in a rifle bayonet fight with the Turks

In recounting the story, which he did with much vigour I noticed his repeatedly emphatic statement "In such fighting you must clutch your rifle very firmly and never let it go, guarding yourself all the time" The explanation of his contracture becomes obvious Grasping the rifle was the very attitude his hand still assumed, in the unconscious he was still clutching the rifle, he was still fighting the good fight, and this desire was symbolised by the grasping hand (*main en griffe*) I was able to confirm this view under hypnosis for on suggesting to him that the fight was over and he could let go the rifle his hand immediately relaxed

It is to Professor Freud of Vienna that we owe our understanding of the unconscious and of the meaning of these symbolic actions It is in the unconscious that we find the springs of action and of thought—a region (this and similar terms are used figuratively) of the mind whose rich and varied emotional nature we are beginning to appreciate—a region less under the control of the conscious intellect than had been heretofore supposed Emotions inhibited from transference into action do not pass into nothingness but persist in the unconscious often influencing the whole life of the individual in some distorted and irregular way perhaps biding the time till opportunity occurs for their manifestation

I may mention a simple experimental proof of the working of the unconscious One of my patients a sergeant of 18 years service, was under treatment for hysterical paresis of the right hand Under hypnosis I suggested to him on a day that he should write with this right hand a letter home The next day he told me that he attempted to write a letter but found it impossible Again under hypnosis I suggested to him to write me a letter with the paralysed hand The next morning he handed me a letter addressed to myself Thanking him, I said "But why did you write to me for I see you every day? He replied "I thought it would be right to show you how I am getting on He was quite unaware of my earlier suggestion and consciously he did not know whence came the impulse to write As is so frequently the

[1] The case numbers refer to the departmental no the hospital register

ase consciousness proceeds to find a rational motive a mental process which should put us on our guard not only n our dealings with others You will probably remember he advice given by Lord Mansfield to a newly appointed udge "Give your verdict it is pretty sure to be right, never ;ldue; your reasons—they are equally sure to be wrong '

The Meaning of the Hemianalgesia

I return to my Irish soldier to investigate the meaning of the hemianalgesia which developed, as we saw, under medical examination. Here I have to make an assumption—namely, that during the fight this analgesia was present, and that it passed away subsequently It is a fair inference, I think because he told us he felt no pain and when led away did not know he was wounded until his attention was called to the blood coming from him. In other patients I have similar records of feeling no pain and having loss of sensation from the time of the injury

Assuming that he was thus analgesic during the fight, you will agree that we have here an error, or rather distortion, of perception We know that no nerves were injured which could account for the analgesia and we know that the skin was normal Sensation was conveyed rightly enough, but the unconscious mind refused to feel pain—a refusal of which consciousness knew neither the fact nor the motive The unconscious acted here like Nelson did consciously at the Battle of the Sound And for a similar motive Nelson wanted to go on fighting So did my young Irish soldier—who was, as you may imagine a very highly strung and sensitive individual. Had he allowed himself consciously to feel pain he would either have had to retire from the struggle or perhaps let go his clutch on the rifle and be killed

We are now prepared I think, to understand the revival of the analgesia under the pin pricks of Colonel Stewart Of the first prick or two the unconscious took no notice but as the pricks continued the former memory was revived and the unconscious became on guard The Turks are at it again re-living a similar experience, the unconscious developed the same defensive mechanism—that is, the perception did not pass from the unconscious into the conscious

No doubt many of us have been surprised at the language occasionally used by ladies of refined habits and careful education under anæsthesia or in mental aberrations We wonder where on earth they could have heard such expressions The simple truth is that they have never heard them—have never known them consciously The words have been conducted to the unconscious but have not filtered into the conscious any more than did perception of pain in this soldier

Before leaving this patient, although I have far from exhausted the material I will hope that incidentally his case will help to remove the stigma that so unwarrantably is attached to the term neurotic. This soldier who has, I believe, been recommended for the V C, is certainly a neurotic, but there are nice and nasty neurotics He like the great majority of my hundred soldier patients, was of the nice kind

Symbolic Conversion

In this case the paralysis was on the right side, but he was a left-handed man, in the great majority of cases dealing with right handed people the diseased manifestation is on the left side Oppenheim[2] accounts for the preponderance of left sided over right-sided symptoms in these disorders by the relatively low vitality of the right hemisphere of the brain ' an explanation of the unknown by the mysterious and vague If you can attach any precise scientific meaning to Oppenheim s statement—well there it is Some years ago Stekel[3] showed that in hysterical giddiness and fits there was a tendency to fall to the left side and he noted that right and left are used not only of direction but of mental and moral values 'He s all right "To get out of bed with the left foot. ' In the posters of *The Girl* who took the *Wrong* Turning, the artist depicted the beautiful but naughty heroine as turning to the left at the cross roads The left-sided manifestation is a symbolical expression for things are all wrong with me "

The positions of up and down are used similarly by the unconscious with an ethical significance—as we speak of a fallen woman, top hole, down in the dumps, an elevating book, and so on The translation of ideas into their verbal physical equivalents, as moral judgments, is a common mechanism in hysteria as it is in dream life

CASE 2 (Case number 29)—An Australian, aged 36 was admitted on Jan 24th for stiffness and pain in the back and paraplegia The sensory and motor disturbances in the legs improved considerably, but the back remained as stiff as a ramrod and more painful The history he gave betrayed much feeling at what he considered inadequate treatment after a high explosive shell had burst some yards from him on Nov 10th He walked down to the dressing station and was given some pills and sent back to the trenches The next day his back was painful, but he says he showed himself to the doctor, who again sent him back In the trenches he was unable to move On the fourth day he was sent into hospital and thence to Malta

You will understand that I am repeating this history not to criticise the medical officer nor need we accept the patient's story as the account of what really took place I accept it for its psychological value—it expresses what the patient felt on the subject, a feeling which gave rise to much emotional bitterness, even under hypnosis The clue as to the meaning of this rigid back was obtained one day when he said in hypnosis ' The doctor put my back up ' There unfortunately the back remained when, having recovered the power of his legs, he was sent back to Australia, where I hope it will come down under the mollifying influence of his wife and children

Another instance of this symbolism occurred in a case of recurrent mutism

CASE 3 (Case number 50)—A lad, aged 21, was kicked on the *left jaw* by a horse on Dec 31st (He also complained of inadequate treatment) On Jan 1st, having been then admitted to hospital, he, whilst in bed was taking part in a sing song when he suddenly found he could not utter another sound He remained dumb till the morning of the 4th when on awaking he found he could whisper that he wanted his breakfast

This is a pretty instance of another of Dr Gee s aphorisms ' It is an interesting reflection that powerful emotion prevents eloquence and sometimes takes speech away ' Whether the patient was an eloquent speaker I am not able to say, but I presume he was something of the sort, he was in the habit of preaching both before and since joining the Army On one occasion after joining the Army he spoke for one and a half hours on the duties of a Christian soldier He was always talking to his comrades, and nothing pleased him better than discussion or argument. Over and over again he had been told to shut up hold his *jaw* Now, after receiving the kick he went to his medical officer literally holding his *jaw*, and after the wound had been stitched was sent back to his tent He felt inclined to *remonstrate (to jaw)* but thought it better to hold *his jaw* Later in the afternoon the pain was so bad *in the jaw* that he was visited by the doctor and sent into hospital. The next evening however he found himself taking part in a sing song—an inconsistency to which the unconscious promptly replied by ' holding *his jaw* ' figuratively

It must be remembered that we here are dealing with what is archaic and crude in the unconscious with what links us the heirs of all the ages, mentally with primitive man In this lower culture there is, as you are aware, no clear distinction between words and the objects they denote The utterance of the correct word the power of the word, has a magical effect, the Open Sesame and Rumpelstiltskin of the fairy stories have been believed and carried out in our childhood s play A Central Australian has but to get the magician doctor to pronounce a curse on his enemy "May your heart be rent asunder, may your backbone be split'—the enemy s backbone is split unless he get on his side a more powerful magician to ward off the words. You will find the Neapolitan fingering his charm whenever he by chance alludes to some good fortune, and the Britisher, laughing at this superstition is not always above touching wood when amid say an epidemic of dysentery he should happen to say that so far he is quite well

Functional Amblyopias

With these illustrations of the mechanism of symbolic conversion we may proceed to unravel a further significance I choose a case of what the older physicians called anæsthesia of the retina termed by Captain A. D Griffith in his lecture here "war amblyopia."[4]

[2] In an article in Berl klin. Woch. quoted in Brit Med. Jour Nov 3rd

[3] Stekel W Jahrbuch f psych u psychol Forschungen vol 1 p 457

[4] THE LANCET June 24th, 1916 p 1246.

CASE 4 (Case-number 26) —An Australian, aged 19, was admitted for loss of sight in the right eye, with normal vision in the left There was a right ptosis present from childhood He had been seen by Colonel Stewart and by the eye specialists, Captain W M Townshend and Captain Griffith In the right eye on Jan 7th there was perception of light and nothing more, the defect had begun on Nov 15th This is the history he gave me On Nov 15th he was sniping through a loophole when an enemy bullet knocked a piece off the stock of his rifle He continued at his post, five shots later another bullet struck the sand around the loophole The right eye began to water He shut the loophole and went away for an hour He then returned, the eye being better, opened the loophole, posed his rifle, and then found he could not see the sights on the rifle There was obviously nothing to do but go to the doctor The vision got rapidly worse and in a few hours he had lost perception of light Let me add that he was a lad of great, almost reckless, courage and of great independence of spirit

The hysterical manifestation is, according to Freud, a compromise formation between a repressed wish and an inhibition, the result of a mental conflict between the ego instinct and the gregarious instinct—termed by Mr W Trotter the "herd instinct" This Australian is a developed type of the gregarious instinct—his soldier's quality is strong A bullet hits the stock of his rifle whilst sniping—the enemy have located him You must remember he is sniping, so that to go away were quite allowable But he does not give up Then another bullet comes near The unconscious, acting on behalf of the ego instinct, sets the eye awatering forcing him to relinquish his post Then the soldier s instinct asserts itself, the eye ceases to water, and he returns to the loophole But here the egocentric instinct, self preservation, reasserts itself, and the unconscious adopts a stronger attack He is stricken blind in the shooting eye (note, also, that it is the seat of a congenital deformity) He is now unable to carry out his conception of the soldier s duty and without loss of self respect is able to retire, his safety guaranteed. Shall we say that the compromise ends with the odd trick in favour of the egocentric instinct? Even so it will be granted from the measure adopted by the unconscious that he must have been a first-class fighting man Blindness has always been regarded as one of the direct calamities that could happen to youth and you must remember that for some weeks he believed that his right eyesight was gone

CASE 5 (Case number 59) —Indeed, in another soldier there had been loss of vision since the South African War in the right eye after he had been struck on the right eyelid by a pebble For this he was receiving a small pension up to this war Last May, following a shell explosion, the left eye began to fail There was a considerable degree of hypermetropic astigmatism, which glasses failed to improve After treatment he had as good vision, with the correcting glasses, as could be expected with the defect present, and which had, of course, no connexion with the injuries He could read 6/18 in the right eye and 6/12 in the left This will show how persistent these functional amblyopias may be, and what the conscious of my Australian patient may be said to have bargained for

Fear and its Disposal

Fear and its disposal I propose to illustrate by the following case

CASE 6 (Case number 45) —The patient, a private in the Royal Engineers, aged 25, had gone through the Gallipoli campaign without a scratch and, as he says, with practically no fears, and was later frost bitten in Salonica He was sent to hospital on Dec 18th When he came under me on Feb 7th the finger of the right hand was well, but there was some loss of grip He was then suffering from insomnia, terrifying dreams and shaky hands On Dec 6th at K—— when holding horses on a flying bridge the animals started and he was thrown into the water, he was picked out none the worse The next day it happened that his horse was shot under him, but he escaped A few days later the finger got frost bitten and he was sent to hospital where his hands began trembling, sleeplessness came on, and severe headaches

The patient is a thick set, sturdy fellow, jovial and kindly, the son of an agricultural labourer The thyroid was diffusely enlarged, but there were no ocular signs of Graves's disease and no signs of disease in the central nervous system The blood pressure was high and he showed lymphocytosis There was a fine tremor of the hands six to the second The pulse was irregular and rapid, and there were not infrequent attacks of cardiac palpitation—almost anginal in character The extremities were cold and blue (only one finger on one hand had been frost-bitten), he sweated violently in the palms, there was hyper-sensitiveness to sound, occasional attacks of dizziness, and a feeling of suffocation—making him gasp for breath There was frequent desire to micturate

You will agree that this is the description of a severe state of fright, such as many may have experienced in the examination hall when the hands get a little tremulous and the palms sweaty, and sometimes these dreadful infirmities are provided with extra latrine accommodation The blood changes and the thyroid condition raise such difficult and controversial questions that I do not burden this paper with the subject I would just remind you that Weichardt[5] has shown that in the *mental fatigue* of school children the blood is toxic He even prepared an antihemotoxin which he proposed to sprinkle over the schoolrooms

To return to the patient—his terrifying dream was always the same "*I see a Frenchman digging a knife into a horse* He gets off his cart to do this It is in Serbia" Not only at night but during the day this comes up as a vision It is an actual occurrence He saw a French transport soldier, drunk, get off the wagon and plunge a knife into a *mule* to make it go With some others he stopped the Frenchman and drove the wagon into quarters (Note, the mule becomes a horse in the dream) The patient's feelings about horses were very intense He had been used to horses since childhood, his earliest recollections are of driving with his father or of being put up on the plough horse As a boy he was engaged about the stables and then became a groom He wept profusely when talking to me of the sufferings experienced by the wounded mules in Gallipoli, and when I suggested that human beings suffered more he would not have it so Animals could not talk No animals should have been allowed there he said He never had any trouble with horses, for he understood them exactly, and he was always given the difficult ones to manage In short, he was as doting on horses as any dowager duchess over her Fido

We suspect all exaggerated sentiments—methinks the lady does protest too much Investigation soon showed that the suspicion was justified He identified himself with the horse He was the horse of the dream, it is he who ought not to have been in Gallipoli—it is too much for him and others Consciously the soldier instinct in my patient would know no fear for himself But as the Latin satirist says—

Primus in orbe deos fecit timor[6]

Fear is a primary natural instinct, and, like murder, will out So long as the patient was actively engaged looking after the horses he could expend all his mental excitement in pity for them—i.e, himself But condemned to inactivity by the frost-bitten finger this mental excitement (which even before had been abnormally expressed) finds no outlet, emotionally or actually Could it reach consciousness the patient would have been able to deal with it as he subsequently did with our help These frequent cases of tremors and the like are invariably due to fear thus bottled up—repressed from consciousness (not necessarily fear of shrapnel) and not being acknowledged or worked off become morbid fear (i e, morbid because it is no longer objective)

That the person should become a horse in the unconscious will not startle anyone who has dipped ever so little into the totems and taboos of the lower races The kangaroo tribe, for instance, as Sir J G Frazer[7] shows consists of kangaroos and kangaroo-men, who actually are kangaroos and delight to show their identity by identity of action But, indeed, it is not necessary to travel to Australia. Who of us has not galloped as a horse, pawed the air, impatiently neighed, and chafed at the bit And when some day our child comes galloping into the room kicks over a chair and seizes some food from the table with his teeth—we understand We do not say "Don t Dickie" but we pat the mettlesome steed on the head, feed him from the hand with lumps of sugar and bits of apple, we softly rub his nose

[5] Weichardt School Hygiene vol i p. 226 and vol ii p 191

[6] *Amor* Freud spells it He and Petronius Arbiter are both wrong, In the image of God created He man is correct psychology

[7] In the Alcheringa lived ancestors who in the native mind are so intimately associated with the animals or plants the names of which they bear that an Alcheringa man of say the kangaroo totem may sometimes be spoken of as a man kangaroo or as a kangaroo-man The identity of the human individual is often sunk in that of the animal or plant from which he is supposed to have originated" Spencer and Gillen (Native Tribes of Central Australia" quoted by J G Frazer The Magic Art" vol i p. 107) There was no sharp line of demarcation drawn either in theory or in practice between a man and his totem"

We understand. The father is no longer everything that is wonderful in strength and power, there are other great spirited creatures too And perchance we silently pray May all future adaptations be as gleefully and successfully accomplished, as happily understood by ourselves and as little thwarted

A Case of Maladaptation

It is with a case of maladaptation that I will conclude But first I would like to formulate what I hope has been established in four propositions (1) That the psychoneuroses among soldiers are capable of understanding in psychological terms, (2) that the symptom is a symbolic (disguised) expression of an unconscious mental process, (3) that the mental process *may be* the resultant of a conflict between two divergent impulses—the egocentric and the soldier's instinct, (4) that morbid fright is due to pent-up emotions—stored up fears—that have not been acknowledged or actually worked off

I pass on to consider whether the matter is quite so simple as I have put it in my third proposition where following Freud, I have stated that the neurosis arises as the conflict between a repressed desire and an inhibition. Freud is the pioneer and master of us all in this sphere of psychology, his genius has given us a key by which to unlock the human mind but we are bound to go on with the exploring on our own account. We shall proceed to explore by the help of—

CASE 7 (Case-number 40)—The patient is a married man aged 29 a private of some months' service, who after three months in France was sent to Salonica where he was invalided for severe and persistent backache insomnia, and occasional enuresis. On Feb 5th 1916, he presented a widespread analgesia, with odd normal patches, and a zone of hyperæsthesia in the lumbar region It is his mental condition however, that I desire to bring into notice There were sleeplessness general restlessness, inability to fix his attention on anything for more than a few minutes In conversation with his mates he would, for instance, be suddenly quite oblivious of what they had been talking about and felt uncertain whether he had spoken or not. He read for a few lines and would throw down the paper In writing home he once told me that he had begun 20 letters, destroying each, and then finished a few lines He was so "shy" that he could only with difficulty walk along the hospital ground feeling then that everybody was looking at him He had found it impossible to number off in the ranks and had he to address his commanding officer he would be quite speechless. He was morbidly anxious about his family though he had no reason to suspect illness he would carry a letter from his wife two or three days in his pocket before venturing to open it, lest there should be bad news

There were numerous obsessions or eccentricities In walking he must mark each flagstone and touch each post He had the impulse to count and to arrange things in patterns, counting on his fingers or the panes of windows in the rooms and arranging them in sets of twos, threes &c. An obsession that came to light was an impossibility to go into a shop or restaurant alone By dint of great effort he could thrust himself into a hosier's or a tailor's shop alone after a careful survey to ascertain that no other customers were present This peculiarity was the cause of numerous embarrassments His wife to whom he was ashamed to confide the trouble would ask him to buy something when he was going out He would assent realising at the same time the impossibility of the task and already inventing some lame excuse to be presented on his return. Often had he gone without a meal when moving alone because he could not face going into a restaurant

At times a cloud seemed to come over him and he did not seem in the world at all but was without a spectator watching and but dimly interested in the movements of men and women himself included. He was a well-educated man a public school man with a well-developed and a subtle intellect well orientated in space and time He realised quite as well as do you or I the absurdity of his obsession and as he said to me "I know I'm a damned fool and it's rot, but there it is I cannot help myself"

In short you will see we have a well marked type of psychasthenia such as Janet has described so graphically in his work on obsessions Time does not permit of a detailed examination of these phobias and obsessions some of which, indeed, were never analysed out, but I want to deal with the general faulty direction of this patient

We learn much from his history —

We note that he had never done any work since he left school at 18 until he joined the Army as a private He had substantial private means. He had been married three and a half years and had a son, and was devotedly (morbidly?) attached to wife and child His time had been engaged in travelling about the world in various sports—he was an excellent shot and was selected for sniping in France, where his "bags" brought him great credit He was the son of a well to-do shipbuilder and from the earliest days was passionately interested in ships and engineering His school holidays were chiefly spent in his father's or the adjoining yards, and he was always planning and later on designing new kinds of ships and engines never to be used During his boyhood's holidays he would accompany his father on business journeys and would sit in the customers' office whilst business transactions were carried on—always, in his own words "gloating with joy at his father's cleverness and talk."

He passed creditably through school did quite well at games, and it was understood that he would enter his father's business On leaving school his father said No need to hurry about business, take a couple of years and see the world He then returned ready and anxious to enter business But the father suddenly had a "nervous breakdown" and the son was compelled to remain in the closest attendance upon his father for the next year The sick man would have no one else near him, and would not listen to the youth's approaching the business The father better, the son felt the real need of a change and went away for six months, he returned and again there was the talk of his entering the business. His father had a second attack, and again for a whole year the son was chained to his father He then again took some months' rest, and on his return the father had withdrawn from the business, and there was no longer talk of the son's doing anything Indeed, any approach on the subject seemed so to agitate his father that his son, fearing another attack, avoided the subject

This brief sketch will suffice to demonstrate the dominant part played by the father—the patient was assuredly the father's thing—no independent being Let me quote an incident My patient was at a seaport when he was about 21 awaiting a ship to go abroad when a friend of the family met him and invited him to stop there He could give no reply was extremely embarrassed and wired to his father to come and help him. The father travelled four hours journey and my patient felt completely at ease when he was able to meet his father

Now it is easy to see the position. We learn that the boy passed through a normal schooling and that no symptoms developed until the father's breakdown, and that this breakdown was the frustration of the patient's all ambition—to build ships and engines, to invent new kinds That was his special work in life Love of father, mother to be a husband, father, &c. these he shared with humanity in common—but shipbuilding, that was the individual thing which absorbed such energies as were not to be devoted to the common duties of life His father stood to him for power and ships and engines—through the father he could climb to his own pinnacle And then comes failure. The patient, inhibited from following his horme regresses, turns back and seeks in his phantasies the consolations and the position which belong quite legitimately to childhood, but do not fill up the adult outlook.

I have spoken of the unconscious as something archaic and crude but I now want to correct that by adding that the unconscious is also creative and elaborative. A cross-section, so to say of any mind at any given moment would reveal not only the past but the germs of the future—the potentialities to become realities with time The psyche never is, but is always becoming—changing, there is ever an onward thrust. It is to this dynamic psychic energy that Jung gives the term horme. My patient did not pursue his horme—he did not, if you will allow me the expression give objective value to his soul through ships Hence his suffering You see he could marry and fulfil some common objectives of life The difficulties were here enormous—granted but life is relentless Difficulties must be surmounted. And the patient is learning this

I will give you two of his latest dreams to illustrate his new adaptation. Dreams says Freud, are the royal road to the unconscious Their analysis is the chief help the patient gets to an understanding of his hidden self. Of course, much fun has been poked at dream-analysis which is likened to the dream interpretation of the ancients With this it has as much resemblance as has modern urinary analysis to the water casting of the Middle Ages Our predecessors recognised that dreams must have some message, but they had not discovered the clues to read it

If you have followed me in the account I have given of symbolic conversion in hysteria you will have no difficulty in understanding the principles of dream analysis We have

again here ideas represented by their physical counterparts, the clue to the symbolised is obtained from the dreamer's "free associations" to each picture He dreamt—

I was in a cargo boat in the river, we were steering straight into the ferry and harbour The pilot rang down full speed astern I pushed him out of the way and rang down full speed ahead, two points to starboard We went straight past ferry and harbour without accident

A few days later—

In a motor-car, came to some rocks which sprang up in front of me The machine broke down I abandoned it and walked, clambering over the rocks It was tough work My object was a ship I got to the ship, took hold of the wrench and signalled to let go

We found by analysis that the pilot in the first dream and the motor in the second stood for the father The meaning became clear He must first sacrifice (knock down, abandon) the father element in himself, then his horme (ship) will be directed ahead and in the right way (starboard) There are difficulties (rocks) ahead, but he will climb over them When the unconscious of our patient has reached this, when he learns that he must surrender that which is infantile and immature in himself—that clinging to the father—that he must be master of himself, we have reached a new view point All his will power will be still required to make good the lesson, but he need no longer be the victim of unknown impulses He is not cured—doubtless he will regress many a time before he hacks his way through life, but the way of understanding has been given to him

Psycho analysis and Hypnosis

By psycho-analysis the patient must reach out to a realisation of his weaknesses, his limitations his vocation Effort of will is demanded to make the synthesis which is disclosed as his In suggestive therapy the will power is employed to overcome a difficulty or a symptom without any bitter self realisation of the meaning of that symptom.

Hypnotism has been most successfully applied in the treatment of our soldiers, because in most cases the neurosis has arisen under the strain of quite extraordinary conditions I would remind you that our Army is not composed of fighting men in the technical sense The men came from the mill, the mine, the farm, the counting house, the country house, every trade was represented and every class Thus, the man brought up to a quite other avocation was suddenly with scant training, called upon to make a new adaptation In the stress and strain of their normal life they would have probably been equal to any emergency But for some —among the very best—the new condition called out to them to strain themselves to the utmost, and this was just a little too much

A word as to treatment Major F W Mott in his Lettsomian lectures says "I do not find hypnosis or psycho analysis necessary or even desirable, only common sense and interest in the welfare and amusement of these neurotic patients are necessary for their recovery" This contrast between common sense on the one hand and hypnosis and psycho-analysis on the other betrays, I fear, a survival of the mediæval fear of witchcraft It reminds me of one of my patients a mute

CASE 8 (Case number 4)—This soldier was in a mine accident eight years ago when his brother was killed and he lost his speech, which recovered spontaneously after 18 months Following a shell explosion in Gallipoli he was again stricken speechless and deaf, he came six weeks later under me and objected (in writing) to treatment saving that he believed in Nature's methods God had taken his voice away before and had restored it I replied (in writing) rather irreverently, that God had taken 18 months, I could do it in a few minutes He afterwards relented, and speech and hearing were duly restored in the time promised To his expression of thanks I replied now more reverently that I was merely the instrument of Providence

There is no such antithesis as Major Mott supposes Whether the patient gets better by a dose of Major Mott's common sense, or spontaneously recovers, or recovers by suggestion in the waking state or under hypnosis, the effect on the patient is just the same The patient has not learnt although he may obtain intellectual apprehension, the significance of his illness I employ the method that seems best adapted to bring about a speedy cure, sometimes suggestion in the waking state sometimes under hypnosis, with such other aids as we can obtain for our patients —including the invaluable assistance of the sisters and orderlies

I have explained why in my opinion, hypnotism works so satisfactorily among soldiers, and on the same grounds it seems to me quite safe We have a neurosis arising under exceptionable conditions, a neurosis not likely to recur when the patient returns to his normal life Hypnosis is easily induced among soldiers Out of 78 cases, only 3 could not be hypnotised at the first attempt, of these 3, one was hypnotised later another practised auto-suggestion, and the third was refractory (Hypnosis, of course, does not spell cure) Of another 27 patients, some were treated by rest in bed and others are cases of various psychoses, only 5 patients were treated therapeutically by psycho-analysis. When a pre war neurosis exists, such as the case I have briefly described, there is no substitute so far as I can see. Psycho-analysis was, of course used for purposes of diagnosis or with a view to helpful suggestion in most cases, but used in this way, the patient learns nothing, of course about himself He is simply got into a communicative mood about himself You let him gabble on giving his dreams, &c, and pick out the golden threads for your own purposes

Conclusion

If anything I have said should lead to a further understanding of the British soldier I am well content Napoleon used to say that the British are a nation of lions led by asses The lion is still there and let me remind you, lest *pax bellum*, we forget, that the lion is just our old friend the British working man Eighteen months ago our first case alluded to, the hero of the 15 bayonet wounds was—a plumber!

I should like, in conclusion, to express my thanks to the consulting physicians of the island, Colonel Garrod and Colonel Purves Stewart, especially to Colonel Stewart for the generous help he has always given me with his notes on the cases Nearly every case was seen by Colonel Stewart and the diagnosis made or confirmed by him prior to treatment I need not add how great an advantage and relief this is to the psycho-therapist My thanks are due also to many colleagues who have sent their cases to me for treatment and to my friends, Lieutenant Paton and Lieutenant Kean for much real help

THE LANCET March 11 h 1916 p 563.

THE TREATMENT OF INFECTED SUPPURATING WAR WOUNDS

BY RUTHERFORD MORISON, FRCS,

PROFESSOR OF SURGERY DURHAM UNIVERSITY SENIOR SURGEON NORTHUMBERLAND WAR HOSPITAL.

WOUND infection has been the great surgical curse of this war Until recently all the means I had seen tried at our War Hospital had failed to satisfy the most moderate surgical ambitions Since I have now developed a simple method, necessitating but few dressings by which many wounds can be sterilised at once, while in the remainder, so far as my present experience goes the spread of infection can be checked and limited I consider it a duty to submit results without further delay

The steps of treatment are 1 Under an anæsthetic usually open ether cover the wound with gauze wrung out of 1 20 carbolic acid and clean the skin and the surrounding area with the same lotion 2 Open the wound freely and if possible sufficiently to permit of inspection of its cavity (In doing this special regard must be paid to nerve trunks and muscular branches of nerves since the division of blood vessels excepting the largest and of the muscles themselves does little harm as compared with that of the disability following nerve damage) Cleanse the cavity with dry sterile gauze, mops Volkmann's spoon &c and remove all foreign bodies 3 Mop the surrounding skin and the wound cavity with methylated spirit Cotton wool mops covering the spirit are used for this purpose and are introduced on forceps 4 Fill up the whole wound with the paste described in the footnote below[1] dress it with sterile

[1] The paste Bismuth subnitrate 1 oz by weight Iodoform 2 oz by weight paraffin liq q s to make a thick paste I suggest for it the name Bipp A convenient means of applying it was suggested to me by Sister Mitchell in War 120 She gave me two bone spatulas one to lift the paste and the second to plaster it in and on with

gauze, and cover all with an absorbent pad, which is held in position by sticking plaster and a bandage This dressing requires no change for days or weeks if the patient is free from pain or constitutional disturbance Should, however, discharge come through the stained part must be soaked in spirit and a gauze dressing, wrung out of the same applied as a further covering

The advantages of this treatment have been most striking in cases of compound fractures of the long bones Previously such compound fracture patients suffered so severely that their treatment had proved an ordeal for all concerned Such cases now are associated with little more suffering and trouble than those of fracture without a wound at all Lesser advantages are that during the period when frequent changes of dressing were necessary several nurses and orderlies were employed in my wards doing little else than dress wounds I now in two hours and once a week dress nearly every wound myself

Redressing is very simply done After removal of the old dressings the wound is covered with a dossil of wool soaked in spirit, and the sticky, dirty looking discharge is wiped off the surrounding skin until it is clean This is done with dossils of cotton wool soaked in spirit and applied by forceps.[2] The wound and a small area of the surrounding skin are then plastered with paste which in its turn is covered by a gauze dressing under a pad and bandage

It is obvious that time and opportunity are needed to work out explanations and to suggest further applications of our scheme of treatment Improvements in technique are also inevitable Meanwhile our pathologist, Dr Helen Clark, is interested in her part of the work and is endeavouring to find a solution of the many questions which arise in connexion with it I may state that we have both thought that the anaerobic conditions produced by the absence of drainage and by the presence of the paste may have some influence in regard to the clinical results achieved, but we recognise a possible danger in its application to wounds at the front. There is some evidence against the anaerobic view provided by two of the cases to be recorded, but my own expectation is that fresh wounds will be found to respond satisfactorily to treatment by the method described For such fresh wounds—when infective gangrene is still to be remembered as a serious possibility—I suggest that, meantime and experimentally, free drainage be employed after the cavity of the wound has been mechanically cleaned and plastered over with the paste

Iodoform poisoning —Twenty five years ago it became a fashion with some surgeons to fill wounds with iodoform powder and sew them up, and I had the opportunity of seeing several cases of poisoning with some deaths. I reminded my resident surgeon, Dr Evelyn Ritson of the early symptoms produced, these are hollowness of the eye sockets, with a dark rim surrounding them a dry red tongue frequently an elevated temperature and some muttering delirium She drew my attention to one patient a case of reamputation of the thigh whose stump had been rubbed over and packed with the paste, who had occasional mild delirium commencing a week after the operation No other sign of iodoform poisoning was present, and he looked well It transpired that he had not slept well since he was wounded and had had little sleep for some nights He was very well next day after a dose of morphia at night This is the only case we have had suggesting that dangerous iodoform absorption might have occurred Children, so far as I remember have a peculiar susceptibility to it, and I happened to have under my care a child 4 years old with tuberculous peritonitis and double septic psoas abscesses of large size Her chance of recovery unless something new could be done appeared to be so remote that I filled both abscesses with the Bipp More than 1 oz of the mixture was used This was done on May 22nd. From that time she has slowly improved and there were never any signs of iodoform absorption which I regard as a good test of its harmless character in the present combination

I have often been asked what happens to the paste but that question requires further knowledge to answer completely Some of it we know is extruded and this may occur late and after the wound is apparently healed A small sinus forms from which iodoform and a brownish discharge escape but our present experience is that this quickly heals In the great majority of cases the mass appears to be slowly absorbed

Osteogenesis —With X rays it is possible to watch the disappearance of the mass of "Bipp" and its replacement by new bone The first case reported suggests that the paste may stimulate osteogenesis. The rapid union which has been noticed in some of the fractures supports it I am indebted to Dr T L Bunting radiologist to the Northumberland War Hospital, for X ray reports and photographs

Catgut —In several of the exhibited cases[3] it was noted that thick catgut sutures were used to close the wounds made for exposing the cavity This was employed as a test of the efficacy of the methods used as catgut sutures offer the most definite clinical evidence of any fault in wound treatment A skin suture of catgut, chromicised or plain should cause no redness nor irritation when properly applied (i e, not tightly, but only tightly enough to bring about apposition) if the wound and skin have been made surgically clean After using them in several hundred cases I can make this statement with full confidence of its truth A mild infection causes a red circle on the skin round the suture a worse infection makes the red area weep, and a gross infection leads to destruction of the tissues round the suture with pus formation the suture being cast off as a slough

Phagocytosis —Absorption of the catgut is the result of phagocytic activity, and if this is inhibited from any cause the period required for absorption is prolonged Some of the cases show that healing of the wounds sutured by catgut occurred by "first intention" and that the sutures were absorbed This is the best proof we can at present offer that the wounds were *surgically* clean

Results —In more than 40 cases treated by the method described we have found no need to change a dressing sooner than intended There has been except in head wounds no spread of septic infection no cellulitis nor abscess formation and no aggravation of constitutional disturbance after the operation Relief of pain and fall of pulse and temperature when they were abnormal has been the invariable rule The application of these methods is, of course, not limited to war surgery, and I have used them with equal success in the ordinary septic infections of civil work, but in making such revolutionary claims I prefer to offer notes of verified results

On June 22nd 1916 I gave a demonstration in the Northumberland War Hospital during which distinguished surgeons were present and showed amongst others the following cases —

CASE 1 —Gunner aged 39 wounded on Sept 20th, 1915 by shell On admission to Northumberland War Hospital on Oct 12th in addition to many other wounds he had one over the tip of the right os calcis and another over the anterior part of the heel Oct 17th A piece of shell came out of the heel (underneath) X ray showed fracture of postero inferior angle of os calcis, several loose fragments Nov 15th Heel still discharging a good deal Nov 17th Foot swollen and inflamed, good deal of discharge, dressed with boric fomentations Second X ray "There does not seem to be any change from view shown on previous plate taken a month ago"

Nov 26th Operation by Dr Stanley Robson, under Professor Morison's supervision, tourniquet used. Incision made in middle line of heel from scar of entrance to sinus of exit of the piece of shell Soft parts reflected from os calcis for a short distance Cavity in os calcis cleansed of bone débris and a considerable quantity of granulation tissue Cavity mopped with pure carbolic acid[4] followed by spirit, then packed with "Bipp," and the edges of the wound brought together by a single catgut suture in the centre

Dec. 1st Dark stained serum through dressing Some of the iodoform packing on dressing X ray showed a mass of opaque material, probably iodoform Jan 1st Some paste extruded, wound looking clean Jan 6th X ray "Cavity as shown by iodoform shadows, is distinctly smaller Jan 30th X ray "Iodoform shadow very much smaller and almost entirely outside bone" March 2nd Patient sent convalescent wound still extruding a small quantity of paste through tiny openings April 12th Patient returned from convalescent home complaining of pain in treated heel which had healed a few days after he left hospital X ray showed exostosis on under surface of os calcis

[2] So far as I can at present judge all infected discharge comes from the surface of the wound in the neighbourhood of the skin The paste in the depths is clean and should not be disturbed

[3] Many of the cases have been excluded for lack of space

[4] In many the discharge has pyogenic organisms in it so that I prefer the term surgically clean

[5] This has since been given up

May 2nd Operation, longitudinal incision made on under surface of heel down to bone, exostosis exposed and chiselled off, wound sutured with catgut Dressing Spirit gauze May 11th Dressing removed, wound healed by first intention, quite dry

Remarks —The excised exostosis as seen in the X ray plate had the appearance of new bone formation following the extruded paste, and suggests stimulation of the bone forming capacity

CASE 8 —A private aged 35 Wounded by shell in the right arm about three weeks or a month (he cannot tell the date) before admission He had loss of sensation and movement in his hand A piece of shell was removed from his arm in France On admission to the Northumberland War Hospital, March 9th, 1916, on posterior and internal surface of the middle of the right upper arm was a large, granulating, septic wound, his humerus was fractured March 11th X ray Fracture of humerus 1½ inches above elbow, no antero-posterior displacement" March 12th Evening temperature, 101 4° F March 15th Bacteriological report Streptococci and staphylococci, 25 organisms present in one field, in film made from pus Culture showed copious growth of staphylococci and lesser growth of streptococci

March 21st Operation, wound cleaned up, explored with finger and slightly enlarged posteriorly Arm put up in flexion and retained there by bandages Tube and gauze drain put into the depths of the wound To be syringed two-hourly with eusol After the operation his temperature rose to 101°, and thereafter oscillated between normal or subnormal and 102 6° (on March 25th) until April 21st March 27th Abscess formed on back on hand, opened April 1st Wound looking cleaner, but very painful, especially on being dressed April 3rd An abscess burst on right wrist in front, discharged pus freely April 6th Arm very swollen, patient complained of a great deal of pain

April 11th Operation (a month after admission) Wound above elbow explored and several pieces of loose bone removed No union of fracture at all Wound opened up and triceps nearly divided across to allow of free drainage Packed with eusol gauze Wrist wound extensively opened up across anterior fold of wrist. Grating felt in wrist joint Incision on back of hand enlarged Condition of arm and hand appeared so bad that an amputation would have been done had permission been obtained Wrist and hand wounds filled with eusol gauze Put up on metal splint with elbow at a right angle

April 15th Patient had been running a temperature each evening Wounds dressed, very septic, much pus Still no attempt at union of fracture, very painful April 19th Dressing taken down under an anæsthetic Two further incisions made on back of hand where abscesses had formed All wounds cleaned, swabbed out with methylated spirit, and filled with "Bipp" Arm put up again on splint April 28th Temperature came down two days after "Bipp" and did not rise above normal again, being on most days slightly subnormal Wounds dressed, very little pus, scarcely any pain, œdema of hand largely gone May 2nd Dressing taken down under an anæsthetic Elbow wound granulating and healthy looking Ends of bone felt to be covered with firm granulations, no union of fracture Wrist and hand wounds quite clean, no grating in wrist-joint All wounds washed with spirit and filled with "Bipp" Arm put up in plaster of Paris with elbow joint fixed at a little less than a right angle, fingers left out

May 29th (27 days after dressing in plaster-of Paris) Dressings removed The wound in the thumb fold was quite dry On the dressing covering the wrist was a slimy purulent-looking fluid, but no inflammatory reaction in the wound, which was small, of L shape, and covered with healthy granulations The wound on the back of the hand was covered with dry paste It was about the size of a broad bean, and on removing the adherent paste was covered with healthy granulations All these wounds were re pasted Elbow There was a lot of dark, greasy, purulent-looking discharge on the dressing The large gap above the elbow had contracted into a narrow sulcus with granulations at the bottom of it. On the outer aspect of the elbow the granulations were about the size of a shilling, and had a cockscomb-like appearance They bled readily On the inner side and posteriorly the wound was all healed, leaving a deep sulcus between the lower part of the upper arm and the forearm There was firm union of the fractured humerus Wounds re-pasted Bacteriological report From elbow, sterile, from hand, sterile June 22nd (between three and four weeks later) Wounds dry and healed, except for a small superficial area of granulations on the flexor aspect of the wrist Now healed

Remarks —I have never before seen an arm so badly infected get better and those of my colleagues who saw it with me entertained no hope of recovery The relief experienced from infrequent dressing was not limited to the patient himself, for he disturbed all the inmates of the ward by his cries during each dressing, however carefully done The contrast between his temperatures before and after the use of "Bipp" is striking Bone cases occasioned us great trouble before this method was adopted After any operation upon them infection was apt to flare up more necrosis followed, further operations had to be undertaken and even if healing occurred they were likely to return from time to time with fresh abscesses and more sequestra

CASE 9 —Private aged 28, wounded on March 10th, 1915, by a shell He did not lose much blood at the time A piece of shell, 1 inch by 1 inch, was taken out of the wound in his thigh at the dressing station on the day he was wounded. He was sent down to hospital at L —— and was operated upon again—his hand and his thigh A tube was put into his thigh Secondary hæmorrhage from left thigh on boat, 2 A M, March 23rd Admitted to Northumberland War Hospital, March 23rd, 1916 Temperature, 98° F on admission, fluctuated between subnormal and 102 2° until March 30th, the daily range then becoming smaller until April 13th Thereafter it was rarely above normal, being mostly slightly subnormal On admission on dorsum of left hand between bases of ring and middle fingers was a granulating septic wound, the size of a thrush's egg Patient could not move ring or little fingers but there was no loss of sensation

April 21st Granulations on hand wound very excessive although caustic had been used Abscess had formed in palm and was opened over inner border of palm, about ½ oz of pus evacuated X ray Left hand Fourth metacarpophalangeal joint smashed Very large foreign body between fourth and fifth metacarpals and on joint of them A few tiny foreign bodies also May 12th Operation (left hand) Dr Evelyn Ritson Under an anæsthetic it was quite easy to palpate a large foreign body in palm of left hand, anterior to metacarpal bone of ring finger A longitudinal incision was made over this and three pieces of shell were removed It was found that a probe passed into the original wound entered the cavity from which the shell was taken The wound was curetted and the sinus thoroughly cleansed with spirit Both wounds were packed with 'Bipp and the incision in the palm was sutured The incision on the inner border of the palm which was made to open the abscess was not touched, as it appeared to be trivial

May 20th (8 days later) Dressed The lower half of the incision on the palm had healed by first intention No redness from sutures Some iodoform was oozing from the upper part of the incision The original wound on dorsum was clean and healthy The incision wound on the inner border, which was not pasted, had discharged about 1 drachm of pus, and was still discharging Re-dressed with "Bipp" Bacteriological report Staphylococci, one or two colonies on agar May 29th (9 days later) Hand dressed Dressings had a slimy purulent-looking discharge on them Hand itself free from any irritation Palmar wound had opened up to a certain extent and was covered with healthy cockscomb-like granulations June 5th (a week later) Dressed On palmar surface of hand cockscomb like granulations Same on dorsal surface, with crust round it Bacteriological report Staphylococci, Gram positive bacilli June 12th (a week later) Dressed Three bits of bone came out of palmar wound from cockscomb like granulations Very little discharge Upper wound about the size of a split pea, covered with dry paste, which hid a small granulating area June 22nd Dressed Wounds granulating healthily, small amount of discharge A spicule of loose bone was found in the centre of the palmar granulating area later Still small pieces of bone escaping, not healed

Remarks —This patient had had secondary hæmorrhage from his thigh on three occasions and his life was undoubtedly saved by the skill and perseverance of Major C. D Oyly Grange, who tied at intervals his common femoral external iliac superficial and deep femoral vessels The special interest of his hand wounds is that the small incision for abscess which was not treated with 'Bipp' suppurated freely and the treated wounds scarcely at all

CASE 10 —Driver aged 20, injured on May 30th Patient was riding on horseback when a passing motor skidded and ran into him, squeezing his leg (left) between the saddle and the motor and fracturing it He stated that his leg was also cut by the saddle and the bone protruded On admission to Northumberland War Hospital, June 4th 1916 Left leg was on back splint with foot piece Two inches above internal malleolus was a large oval, very septic, sloughy wound 4 by 3 inches, vertical in its long direction, with muscles exposed also bare bone for 3 inches about centre of wound, ¾ to ½ inch across Foot everted leg painful X ray showed fracture of tibia and fibula just above ankle

June 6th, 1916 Operation Wound covered by moss wrung out of 1 20 carbolic Skin cleaned up with the same, then wound cleaned with sterile gauze followed by methylated spirit Ends of bone curetted, no sequestra

found. Ends of bone placed in good apposition Wound filled with "Bipp," and this was also rubbed on ends of bone Thick catgut sutures in skin, but skin not approximated, because this could not be done on account of inflammatory swelling Sutures *purposely very tight* Dressing Spirit gauze, back splint applied June 8th Had slight evening temperature for two nights (101° F), no pain June 7 X ray Paste filled cavity Fracture of fibula *not* touched by paste

Radiogram of a recent fracture of tibia. (Case 10) Wound filled with Bipp." Note that none of it had reached the fibular fracture

June 22nd Wound dressed first time today at demonstration—i e, 16 days after operation The leg was quite easy and the patient looked well There was not, and never had been, any discharge through the dressing On opening the dressing the wound and the surrounding skin were found to be covered with a slimy muco-purulent-looking discharge The thick, tight, catgut sutures had cut through, and remains of them were found in the discharge Bare bone was exposed at the centre of the wound There was no swelling, redness, heat nor pain, and the wound was covered with healthy granulations Re-pasted. Next day the leg was put into a plaster-of Paris bandage and has been left there, as the patient is well and comfortable

Remarks —The X ray photograph in this case because the fractured fibula shows no Bipp' and clinical evidence in others suggest that the zone of action of 'Bipp extends for a considerable distance beyond the site of its implantation

CASE 11 —Corporal aged 21 Note from France 'Gun shot wound (severe) left arm Fractured humerus (severe) Wounded May 20th by machine gun bullet Pieces of bone removed at H—— and E—— Stinking pus from wound No damage to musculo-spiral nerve" Transferred to Professor Morison (Ward 3-5) June 6th 1916 On admission 2 inches above left elbow joint posteriorly was a granulating wound over middle of triceps with pus coming from the depths through it Two silkworm gut sutures which had cut the skin were still in position in the deep parts On back of arm wound measured ½ by 2 inches On outer side of arm was a granulating wound which communicated with the other, size of a florin Fracture of lower end of humerus, not extending into elbow joint.

June 6th Operation Wounds covered by wool soaked in 1 20 carbolic skin all round cleansed by same Silkworm sutures removed Inner and outer wounds explored with finger Ends of fractured bone felt also several loose pieces which were removed Wounds opened up by cutting through supinator longus and outer part of triceps and cavity cleaned and dried—first with sterile gauze, then spirit gauze and finally packed with "Bipp" Wounds sutured with interrupted thick chromicised catgut through muscles and skin Dressed with spirit gauze Two short Gooch splints for upper arm and angular splint of aluminium applied to antero-internal surface Temperature rose to 101 4°F on the 7th, but did not exceed 99·6° after this (8th and 10th)

June 22nd First dressing at demonstration—16 days after operation The patient had not complained of any pain after the first night Discharge had appeared through the dressings which were pickled with spirit and undisturbed There was a quantity of dirty looking, slimy discharge in the dressing and over the wound and skin There was no sign of inflammation and the greater part of the incision wound had healed The catgut sutures were still present and had caused no irritation Removal of the dressing and splints caused no pain The arm could be lifted by the elbow without causing pain, and careful testing showed that there was already union of the fracture June 30th The patient has been so well and comfortable that the dressing has not been touched It is now almost healed

Remarks —After these experiences with fracture it seems justifiable to expect that compound fractures may be so treated as to cause as little trouble as simple ones do The only reason for moving the dressings in these cases was to see how the wounds looked Men at the front dealt with in this way need never be dressed during their transport or till they reach the position which would give them the best chances of further treatment.

CASE 12.—Sergeant aged 27, wounded on May 24th by hand grenade in both arms Operated upon in France on May 25th, and wounds cleaned up Admitted to Northumberland War Hospital June 2nd, 1916 On admission Right arm Over radial side of right wrist was a small granulating not very septic wound Left arm On flexor surface of fore arm, wrist, and part of hand, more to ulnar side than radial, was a longitudinal irregular wound granulating and septic, 3½ by 1¾ inches, with sloughy muscle exposed at bottom of it In upper part of forearm, flexor aspect and external, extending from the elbow joint downwards, was a longitudinal irregular wound, 3 by 1½ inches granulating and septic

June 3rd Skin and wounds cleaned Dressed with 'Bipp" spread on spirit gauze as butter is on bread Bacteriological report Staphylococci and streptococci breves Temperature 99° F on June 2nd, was normal on the 4th, and did not rise again June 3rd X ray Left arm No fracture seen, many foreign bodies Right arm Small foreign body in front of bones June 22nd Wounds dressed for first time Dressings left undisturbed for 20 days No discharge through, no pain Wounds and surrounding skin covered by slimy discharge No sign of inflammation present, wounds clean, healthy granulations Edges covered by a rim of actively growing epithelium Now healed

Remarks —This case was exhibited to show the effect of treatment on superficial as compared with deep wounds, and it does not offer strong support to a belief in anaerobic agencies It also shows that active healing processes occur in portions of the wound in contact with the antiseptic employed

CASE 13 —Sapper aged 36, wounded on April 19th, 1916, by shrapnel Note from France Gunshot wound right knee, fracture internal condyle femur, tear in popliteal artery, knee joint perforating X ray Comminution internal condyle, two pieces of metal in knee April 24th Amputation, flaps—closure attempted—gave way" On admission to Northumberland War Hospital June 2nd 1916 Right thigh had been amputated through its middle by anterior and posterior flaps Between the two flaps was a large oval, granulating surface, size of an orange, protruding beneath which could be felt the end of bone Bacteriological report Staphylococci and streptococci breves

June 6th Operation Two abscesses had formed on anterior aspect of stump, about 3 and 4 inches above end These were opened, curetted, cleaned, and filled with "Bipp" Flaps dissected up, and about 2½ inches of bone removed Vessels clamped with Lane's forceps and not tied Medulla scooped out and packed with paste Flaps packed with two strips of spirit gauze, spread on both sides with "Bipp," one end of each strip protruding from either end of the wound After being smeared with paste, flaps brought together with three strong sutures of catgut and skin approximated with further catgut sutures Dressed with spirit gauze June 7th (next day) Little blood staining through dressing Patient very comfortable Less pain in stump than before operation Temperature above normal only on 7th (99 4° F) and 8th (99·2°) June 9th Dressed, as dressing had slipped loose Wound looked quite clean, no inflammation June 15th (6 days later) Patient had not been sleeping well Was slightly delirious, but looked all right Gauze packing removed from stump June 17th Dressed, stump looking well, re-pasted June 22nd Small amount of discharge on dressing Thick catgut sutures still holding and causing no irritation Wound almost healed Now healed

Remarks —I probably made a mistake in putting gauze between the flaps They prevented the wound from closing and apparently did no good But our experience of

re amputation has warned us to expect so frequently a bad septic "flare up" and breaking down of the wound that I was afraid to close this without providing for free drainage His temperature chart after the operation suggests that these fears were groundless

CASE 15 —Private aged 26 Note from France "Fractured skull, left parietal, gunshot wound Decompressed at C C S Had choked disc on admission, double Partially blind now Developed meningitis, cell count 190,000, fluid not under pressure, cleared up in five days" On admission to Northumberland War Hospital May 1st, 1916 Patient was dazed and could not remember anything, slightly deaf in left ear, aphasic There was a septic, pulsating, freely suppurating hernia cerebri the size of a hen's egg, immediately above the left ear Dressed twice daily till May 6th The temperature throughout was slightly subnormal (highest 98 6°F, lowest 97 4°) May 2nd Condition much the same, complained of headache May 5th Hernia cerebri looking more swollen, patient comfortable, temperature normal May 6th Hernia dressed with "Bipp" spread on boric lint May 13th (7 days later) Hernia dressed for first time Decreased in size by two-thirds, and patient much brighter Hernia much cleaner May 15th Little discharge from wound Packed with spirit wool and not redressed May 16th Memory better, patient still a little aphasic is deaf still in left ear

May 20th Hernia dressed again, almost flat A little purulent slimy fluid on skin round dressing, and also a very little lying in one sulcus Bacteriological report Staphylococci and streptococci, fair amount of growth on agar May 26th (6 days later) Dressed. There was a layer of purulent-looking fluid covering the centre and lower part of the granulating area which was the cerebral hernia The pulsating granulations forming the cerebral hernia were now rather below the level of the scalp wound There was no discharge through the dressing June 2nd (a week later) Dressed Wound rapidly contracting—size of a shilling and granulations were level with surface of scalp Looked healthy, but there was a small quantity of pus in centre of granulating area Bacteriological report Staphylococci and streptococci breves Only two colonies on agar June 12th (10 days later) One small place in middle of sear not quite healed over, wound dry, paste still in June 22nd Dressed Wound covered with dry paste When this was wiped off with spirit there appeared to be a pin head area of granulations under it Now healed

Remarks —I have never seen a hernia cerebri heal as this did Under whatever form of treatment they have always discharged for a long time and have generally caused serious trouble It is possibly additional evidence against the anaerobic effect of 'Bipp"

Conclusions —1 The treatment of septic wounds in the manner described makes possible healing by "first intention" under infrequent dressings and without drainage further than that allowed for through gaps left by *interrupted* sutures 2 Acute abscesses opened, cleaned, filled with "Bipp," and closed by interrupted sutures can heal by "first intention" without further pus formation I have proved this 3 It appears to be safe to plate compound fractures by adopting the method described. This has been done by my colleagues, Dr Samuel Whyllis and Major D Oyly Grange. 4 As up to the present time no bad results have been observed to follow this method it should have a fair trial in the Navy and the Army without delay

I am indebted to Colonel Adams for leave to publish these case notes

Newcastle-upon Tyne

THE LATE DR H B FLEMING —The death took place on August 5th, at his residence, Campsie House Omagh, after an illness of some months, of Dr H B Fleming, one of the most prominent and successful medical practitioners in co Tyrone Dr Fleming who was the son of an Omagh medical man, studied in Dublin and graduated M B of Trinity College in 1876 He was also a Licentiate of the Royal College of Surgeons in Ireland Beginning practice in Omagh, he was for 39 years medical officer of the Omagh board of guardians, having succeeded his father in the medical officership of the dispensary, but he gave up that appointment when elected medical attendant of the union workhouse and hospitals Dr Fleming was married and three of his sons, all connected with the medical profession are serving with the colours At a meeting of the Omagh board of guardians held on August 5th a vote of sympathy with Mrs Fleming and her family was passed Dr Fleming who had a large practice was greatly respected by a very large clientele

AN ANOMALY IN THE WIDAL REACTION

BY A F S SLADDEN, M D OXON,
TEMPORARY CAPTAIN R.A.M C BACTERIOLOGIST AT A STATIONARY HOSPITAL.

IN the course of a large number of routine examinations of the Widal reaction in the bloods of patients suspected of enteric group infections, the standard method of Dreyer being employed, attention was repeatedly attracted by the occurrence of "zone phenomena'—i e, the occurrence of agglutination in higher dilutions of a serum, while the lower ranges of dilution failed to agglutinate the bacillus This zone phenomenon has been described before now, but, so far as can be gathered from text-books, it has not yet received any satisfactory explanation. Having no reference library available in present circumstances, it has not been possible to look up past observations on the subject, so that the following notes, though original to the writer, may well be repetitions of previous work. However, even if redundant they may be worth recording, especially as they have some practical importance in respect of the diagnosing of paratyphoid A infections, and perhaps also in other directions

The zone phenomenon occasionally appears in Widal tests done by the microscopic method, but it shows itself in a much more striking manner when the macroscopic method of Dreyer is used. In this method killed cultures of the three members of the typhoid group B typhosus, paratyphoid A, and paratyphoid B, in formalinised broth are used the organism having been previously repeatedly subcultured in a special broth medium until it has reached a maximal degree of agglutinability In Dreyer's technique a constant volume of emulsion is used in each tube and the dilution of serum is so arranged that in each tube the final volume of fluid is the same The diluting fluid used for adjusting the volume is normal saline solution. The test is carried out at a temperature of 50–55° C in a water bath for a period of two hours and in this time it is found as a rule that the limit of agglutination is reached Thus the factors of time and temperature are standard and practically optimal, the bacillus used is at its highest attainable degree of agglutinability and therefore also optimal, the fact that the culture is killed and retains its properties unaltered for about three months also standardises results, while the constant volume of fluid (containing sodium chloride as normal saline) renders all results obtained comparable with each other and with past observations

The occurrence of negative zones when other types of bacillary emulsion are used is well known Ledingham and Penfold[1] give two such instances with sera tested against emulsions of living paratyphoid B organism suspended in half normal saline In my experience also the zone effect was obtained when testing the serum of a patient against paratyphoid A isolated from the blood of the same case and growing in broth This patient s serum was tested on three occasions against standard paratyphoid A emulsion but with results entirely negative

TABLE I

Serum (Patient T)	Bacillus (Patient s own)	Dilutions of serum					
		1 : 3	1 6	1 : 12	1 : 25	1 : 50	1 : 125
10th day ..	Para. A			—	+	++	+
	Standard para. A	—		—	—	—	..
16th day		—	—	—	—	—	
22nd day		—	—	—	—	—	

Explanation of signs in tables = Not tested — = no agglutination + = definite agglutination ++ = well marked flocculation +++ = sedimentation of flocculi

This may have been due to an extensive inhibition zone associated with the nature of the standard bacillary emulsion or to other causes unknown The possibility that by their mode of preparation the standard emulsions are especially susceptible to zone effect cannot be overlooked although the phenomenon is primarily a property of the serum

Following Dreyer s technique a negative zone was noticed in many instances no fewer than 35 such zones being found

[1] Brit Med Jour Nov 13 h 1915

in examining sera from 116 different patients As in many instances the tests were started at fairly high dilutions (1 25 1 50 for B typhosus), it is probable that many more zones could have been detected had lower dilutions been tested, notably in the case of B typhosus, for the sera being without exception those of inoculated patients economy of time and material indicated starting tests at 1 50 or 1 125 dilution, whereas the negative zone does not often extend so far upwards Even so, negative zones observed were distributed thus on the average —

TABLE II.

Bacillus	No of zones	Average extent.
B typhosus ...	9	To 1 : 50 serum dilution
Para. A	8	To 1 : 12
Para. B	18	To 1 80

It was, moreover, not uncommon for the range to be even wider—for example, B typhosus to 1 125, paratyphoid A to 1 25, and paratyphoid B to 1 125 serum dilution, at which dilutions agglutination became apparent It did not often happen that all three bacilli were tested out in very low dilutions, but in instances where agglutination occurred with all three and a zone effect was seen in one variety further observations showed that a zone phenomenon was present for all three and the extent of the zones also varied in about the same proportions as given above in the average figures. In other words, the zone of inhibition is not so specific to each variety of bacillus of the group as is the property of aglutination, it is probably a group reaction exerted upon all members of the typhoid group, though with varying intensity

The presence of a negative zone with all three varieties of the typhoid group is shown in the following table of tests made with the serum of a patient (A.S) diagnosed serologically as having paratyphoid B with possibly para typhoid A superadded, the tests being made with serum taken on twenty-seventh day of illness

TABLE III.

Serum dilutions ...	1 4	1 5	1 : 12	1 25	1 125	End point.
B typhosus emulsion ...		—	+	— ++	— — —	1 : 2,500
Para. A emulsion ..	—	+	++	++ —	— —	1 2,500
Para. B emulsion ...		—	—	+	+ — +	1 25,000

From the greater prevalence of paratyphoid B infections combined with the much more decided manner in which this bacillus agglutinates as compared with paratyphoid A a greater number of negative zones with paratyphoid B

TABLE IV —*Serum of Sergeant A with Mixed Infection of Paratyphoid A and Paratyphoid B, Collected on the Thirty first Day of Illness (Jan 5th, 1916)*

Date	Emulsion.	Dilutions					
		1 : 12	1 : 25	1 50	1 : 125	1 : 1250	1 5000
6-1-16	Para. B	—	...	++	++ —	— —	—
7-1-16	Para. B	++	+ +	..	...	+ —	—

TABLE V

Patient	Day of disease when serum collected	Emulsion	Dilutions							End point.
			1 3	1 6	1 : 12	1 25	1 50	1 : 80	1 125	1 250	
A.S	9th	Para. A	+	+	—	—	—	...	..	—	1 : 12
	19th	Para. A	—	—	+ —	— +	+ +	+	...	..	1 80
T	10th	Para. B	..	...	—	—	—	...	—	— —	1 2500
	16th	Para. B	—	...	—	—	—		—	+ —	1 2500
F	About 1-th	Typhosus ...	..	—	+ —	—			...	..	1 -0
	19th	Typhosus ..	...		—	+ —		...	+ + —	— — +	1 2500

might be expected and the general tendency for such zones to be wider also renders their recognition in routine work more likely On several occasions there was evidence to show that the zone effect tends to diminish when the serum is kept *in vitro* for two or three days, an example of this, taken from six such observations, is given in Table IV On the other hand, the extent of the negative zone does not diminish but rather tends to increase with the progress of the illness This is shown in Table V

Other examples bearing out this property could be given If, moreover, in the whole series of cases the extent of zone observed be compared with the day of the disease on which the serum was drawn, it becomes quite evident that when negative zones occur they tend to become wider as the illness progresses This is shown in the following table —

TABLE VI

Emulsion	Extent of zone.	Total cases	Average day of disease
B typhosus ..	to 1 125	1	62
	1 : 50	2	18
	1 25	3	15
Para A ..	to 1 50	1	65
	1 : 12	2	29
	1 6	2	23
Para. B	to 1 125	6	34
	1 50	8	23

In identifying bacilli of the typhoid group by their agglutinating properties with specific sera by the hanging-drop method, the use of distilled water instead of normal saline for the making of bacillary emulsions and serum dilutions is quite satisfactory It seemed, therefore, worth investigating the effect of replacement of normal saline as diluting fluid by distilled water

In Muir and Ritchie's "Manual of Bacteriology" is quoted the experience of Bordet and of Joos that the presence of some sodium chloride is necessary for agglutination Although the actual proportion necessary is not stated it is evident that it need not be so high as that in normal saline (0 85 per cent.) and the following experiments show that the addition of sodium chloride beyond a certain point (which lies below 0 85 per cent) tends, in many cases at any rate, to encourage the production of a negative inhibition zone, and probably also to lower very slightly the end point dilution at which agglutination ceases

In Dreyer's standard method the fluid in each tube consists of 60 per cent of bacillary emulsion (15 drops in 25) and as this emulsion contains over 0 5 per cent sodium chloride there is no lack of the latter from this source alone to ensure agglutination.

Experiments were made with agglutinating sera that had shown a definite negative zone when tested strictly according to Dreyer's method, using normal saline as diluent. In such instances parallel sets of tubes were put up in the first set with normal saline as diluent, is the second distilled water In other respects there was strict adherence to Dreyer s technique.

TABLE VII

No	Patient	Emulsion.	Diluent.	Serum dilutions.				
1	Sgt. A.	Para. B	Saline	1 12	1 25	1:1250	1 5000	
				— —	— —	+ —	—	...
			Water	+ —	+ —	— + +	—	...
2	Wms.	Para. B	Saline	1 12	1 25	1 50	1 125	
				—	—	+ +	+ + +	
			Water	+ —	+ —	— — +	— — +	..
3	H.	Typhosus	Saline	1 6	1 12	1 25	1 50	
				—	—	+ +	—	
			Water	— —	— + —	— + +	— +	..
4	W	Para. A	Saline	1 3	1 6	1 12	1 25	
				—	—	—	—	..
			Water	—	— +	— +	—	..
5	Rob	Para. A	Saline	1 3	1 6	1 12	1 25	1 50
				...	—	—	—	...
			Water	—	+ +	+ —	— +	+
6	Roy	Para. A	Saline	1 6	1:12	1 25	1 50	1 125
				—	—	Trace	+	...
			Water	+ —	+ +	+ —	+ +	+ +
7	Wr	Para. A	Saline	1 12	1 25	1 50	1 500	
				—	— + —	— — +	+ +	
			Water	+ + —	— — +	— + —	— — +	..
								...

The above series of tests carried out strictly on parallel lines affords definite evidence that replacing normal saline as diluent by distilled water causes a diminution in the inhibition zone. Incidentally the extension of the end point which occurs when distilled water is used is clearly seen,

notably in Cases 3, 4, and 6 above, and the following table gives other observations which bear on this extension

TABLE VIII

No	Patient	Emulsion.	Diluent	Serum dilutions			
1	F	Para. B	Saline	1 50 ++	1:80 ++	1 125 +	1 250 —
			Water	++	++	++	+
2	T	Para. B	Saline	1 12500 +	1 25000 —	1 50000 —	
			Water	++	+	—	
3	D	Typhosus	Saline	1 50 ++	1 80 ++	1 125 ++	1 250 —
			Water	+++	+++	++	—
4	H	Typhosus	Saline	1 12 —	1 25 ++	1 50 —	..
			Water	+++	+++	++	
5	W	Para. A	Saline	1:12 +	1 25 —	..	
			Water	++	—		
6	R	Para A	Saline	1 6 +	1:12 —	1:25 —	1:50
			Water	++	++	++	+

In many other cases the same tendency was seen, and no instance occurred in which a "normal saline" end point extended further than a "distilled water" end point The observations recorded make it clear that the use of normal saline as diluent, while not the cause of the zone phenomenon, is at least auxiliary to its production

A few tests were made to ascertain the part played by serum in the production of a negative zone The replacement of a certain proportion of the diluting fluid by a human serum which had proved to be non agglutinating to the bacillus under observation was tried In each instance this added serum was derived from a patient inoculated against typhoid but not suffering from a typhoid group infection. In the sequel this added serum is denoted as "foreign serum"

TABLE IX.

No	Patient	Emulsion	Diluent	Serum dilutions			
1	A	Para. B	Saline	1:12 ++	1 25 ++		
			16% foreign serum and saline	—	—		
2	Wms	Para B	Saline	1 12 —	1 25 +	1:50 ++	1:125 +++
			Water ...	++	++	+++	+++
			8% foreign serum and saline	—	—	—	—
			8% foreign serum and water	—	Trace	+	+

The above series show that in presence of normal saline diluent the addition of as much as 8 per cent of foreign serum completely inhibits agglutination and that this inhibition is less strongly exerted when the salt content of the system is reduced

The influence of varying proportions of foreign serum on agglutinating serum was also tested The serum of a patient, Wms (No 2 in Table IX) which agglutinated Paratyphoid B from 1 50 to 1 2500 dilution, was tested at a constant dilution of 1 25 with Para. B emulsion and rising proportions of foreign serum The degree of agglutination in each test is recorded on the usual system

TABLE X

Diluting fluid	Percentage foreign serum added			
	0	2	4	8
Normal saline	++	++	+	—
Distilled water	+++	+++	++	+

This bears out the previous experience and shows that with 4 per cent or more of foreign serum added an appreciable degree of inhibition takes place which is diminished but not destroyed by the use of distilled water as diluent

Three different "foreign sera" were used in these three different experiments, and the results suggest that possibly all sera if present in about 4 per cent. dilution or more tend to inhibit agglutination or in other words, that the cause of inhibition is always present but in certain cases it is overcome by the agglutinating power of the serum entirely, in other cases only partially, in the latter circumstance the "zone phenomenon" appears The occurrence of the zone up to or beyond a serum dilution of 1 25 (4 per cent.) is thus not surprising and the tendency found for the negative zone to extend in the later weeks of an illness may be associated with the gradual fall of agglutinating power from the maximum No relationship between the extent of the zone and the distance of the end point has been detected, except in so far as both zone and end point are smallest in most paratyphoid A tests and most extended in paratyphoid B cases

In view of the results recorded it seems quite possible that in cases where agglutinating power is not strong and the inhibiting power native to the serum is well developed, the presence of agglutination may easily be passed over This possibly would be greatest in paratyphoid A infections or in the early stages of a paratyphoid B infection The following notes illustrate this point, in all cases normal saline was used as diluent

TABLE XI

No	Patient.	Day of illness	Emulsion.	Serum dilutions.					
				1 3	1 6	1 12	1:25	1:50	1:125
1	K.	25	Typhosus			—	+	Trace	—
2	H	18			—	—	++	—	—
3	B	11	,			—	+	—	—
4	M	17		..		—	—	+	—
5	F	10	,			—	++	—	—
6	W	21	Para. A	—	+	+	—	...	—
7	R	11		—	+	—	—		..
8	E	?	Para B			—	+	—	..

In each of these the "positive zone" of agglutination is comparatively narrow, and the possibility of more extreme cases has to be borne in mind

Another instructive case from this standpoint was seen in a series of tests made on the serum of a man who received mixed vaccine (T A.B) in November, 1915 This was examined four times in February, when the patient (Wr) was under suspicion for enteric The details of tests made with paratyphoid A were as follows, normal saline being used as diluent.

TABLE XII

No	Date of test	Serum dilutions					
		1 3	1:6	1 12	1 25	1:50	
1	1-2-16	—	—	—	—	..	
2	10-2-16	—	—	—	—	..	to 1 500
3	16-2-16	—	—		++	++	+
4	21-2-16	1:125 ++	1:250 ++	1:500 +	1 1250 —	..	..

The conclusion drawn from the above series was that the agglutination power for paratyphoid A of high degree must have been present in all four samples of serum, but that on the first two occasions all the dilutions tested were within a negative zone, and so the agglutinating power of the serum was missed The case of T (Table I), quoted early in this paper, may also be interpreted in this sense

In view of these experiments the importance of the zone phenomenon and its frequency as a disturbing influence in agglutination tests done by Dreyer's standard method seems established In order therefore, to diminish this effect as much as possible the use of distilled water as diluting fluid instead of normal saline has been initiated by the writer in his routine work No practical objections to its use have been discovered, nor is the sharpness of the end point impaired It is not claimed that the operation of the zone effect is thereby annulled but that it is diminished and the agglutination test rendered distinctly more delicate without becoming more complicated

When, as at an infectious hospital a large number of sera have to be tested daily economy of time labour and bacillary emulsion are all desirable and from this standpoint also this modification is advantageous It has proved satisfactory in operation and judging from 19 zone effects noted among sera from 42 patients there is a definite diminution in

he extent of the zone. This is shown in Table XIII. which hould be compared with Table II

TABLE XIII

Bacillus	No of zones	Average extent	Highest observed
Typhosus ..	3	To 1 30	To 1 50
Para. A	6	1:12	1 25
Para. B	10	1:40	1 50

In paratyphoid A infections the agglutinating power of the serum usually develops early, but does not rise to much height, nor does it persist for long frequently Consequently the chances of detecting the infection by agglutination tests may be but small, and the possibility limited to a few days Probably with the other two members of the group, B typhosus and paratyphoid B, the interference of zone effect has less practical importance but a perusal of Table XI shows that the effect is by no means negligible in any one of the three members of the group

Apart from any immediate application, a further study of the phenomenon may help to cast more light on the interactions of serum with invading organism in an infected subject No attempt to promulgate a theory of the phenomenon is here made A suggestion that the inhibiting action may be a bacteriolysis exerted by the serum when present in sufficient strength (2 per cent or more) was considered and a few simple tests made with inconclusive results the balance of evidence being against the theory of lysis, for in several instances where zone effect was seen the negative tube still contained plenty of free bacilli of unaltered morphology

The observations and conclusions recorded are of necessity very simple, and under stress of much routine work there has been no opportunity of investigating effects of temperature or other aspects of the subject

Needless to say, if this modification of Dreyer's method is used it is desirable to adhere consistently to the use of distilled water as diluent in order to get comparable results In this way the very valuable information to be gained by the method is increased

No conclusions have been possible as to the importance of a zone effect on the course of the illness All that can be said is that the majority of cases with zone effect were mild or fairly mild in character, none died nor was zone effect seen in certain severe cases While, therefore, one is justified in regarding the phenomenon as not of bad omen, it has yet to be proved a favourable prognostic

It seems possible that the whole phenomenon may be associated with inoculation. All the zone effects observed were in men inoculated against typhosus (and in two cases T A.B vaccine) within 18 months, nor was any zone effect noted in four cases of uninoculated men who came under investigation In this connexion also it is noteworthy that in the experiments with added "foreign" serum the latter was derived in every instance from an inoculated man and had typhosus titre ranging from 1 50 to 1 250

Summary

1 In following Dreyer's standard method of agglutination testing for suspect enteric cases in the lower dilutions a negative (inhibition) zone is very frequently seen This is not peculiar to Dreyer s method.

2 A feeble agglutinating power if opposed by a well marked inhibition zone, may only be visible over a short range of dilutions, and unless a large number of dilutions be tested the presence of agglutinin may be missed.

3 In the experiments recorded here the sera have been those of subjects inoculated against B typhosus within 18 months

4 Addition of another serum non agglutinating to the bacillus under test, will increase the zone of inhibition

5 The presence of sodium chloride in the test augments but does not cause the negative zone

6 By using distilled water as diluent in place of normal saline the negative zone is diminished and the test rendered more delicate

7 The zone effect is exerted upon all three members of the typhoid group but in varying degrees Its extent tends to increase with the progress of the infection

8 No definite relationship between zone effect and clinical aspect is established but the inhibition zone does not appear to be of unfavourable omen

THE EFFECT OF TYPHOID INOCULATION ON ENDEMIC GOITRE AT THE LAWRENCE MILITARY ASYLUM, SANAWAR, PUNJAB

BY M A NICHOLSON, M R C S, L R C P LOND,
CAPTAIN INDIAN MEDICAL SERVICE.

McCarrison has suggested that endemic goitre is due to an infection by an organism which is probably of intestinal origin and water borne On this hypothesis he has treated cases of endemic goitre with vaccines prepared from various organisms and has claimed considerable success, especially with vaccines prepared from intestinal organisms [1] While holding the appointment of medical officer to the Lawrence Military Asylum, Sanawar, it occurred to me after reading McCarrison's work to inquire into the effect of a powerful vaccine prepared from an intestinal organism, such as typhoid, on the goitre prevalent in the asylum The conditions for pursuing such an inquiry were particularly favourable

The Lawrence Military Asylum was founded by Sir Henry Lawrence in 1848 to serve as an asylum for the children of British soldiers in India from the fierce heats of the Indian plains and the still fiercer temptations that surround children in barrack life in India The asylum is situated on Sanawar Hill at an altitude of 5500 feet, at a distance of three miles from the cantonment of Kasauli It provides accommodation for 500 children, there being nearly equal numbers of each sex. The ages run from 3 to 20 years, and in consequence of the fact that many of the children are orphans and of Indian conditions many of the children spend 6 to 10 years in the asylum The earliest records of the asylum note the incidence of goitre amongst the wards By 1899 the disease had apparently become so prevalent that when in that year the supplementing of the spring water supply with rain water became necessary owing to the partial failure and drying up of the spring, it was specially arranged that the scheme should involve a dual supply of spring water for washing purposes only and rain water for drinking and cooking One of the objects that it was hoped to obtain by this adoption of a dual system was a decrease in the goitre prevalent To ascertain if any progress was being made to this end the Inspector General of Civil Hospitals of the Punjab instituted a quarterly return of the names of all wards suffering from enlargement of the thyroid gland from Oct 1st, 1899

Unfortunately, the original object of the dual water-supply and of this return was soon lost sight of, for after a very few years the separation of the rain water supply for drinking and cooking only and the spring water for washing was discontinued The return, on the other hand, was still, and I believe is still regularly submitted This return affords a complete record of every case of goitre occurring in the asylum since Oct 1st 1899

In June, 1900, a large proportion of the wards were inoculated for typhoid fever and a careful record of their names kept The vaccine used was the ordinary typhoid vaccine provided for the use of the British Army in India and was administered in two inoculations, in doses appropriate to the age of the child, at intervals of ten days In October and November, 1913 the majority of the wards were again inoculated for typhoid fever The vaccine used was that prepared and issued by the Central Research Institute Kasauli. It was administered in two inoculations at intervals of ten days or a week, in doses appropriate to the age of the child, according to the printed instructions issued with the vaccine by the institute We have thus the unique opportunity of dealing with a considerable community subject to endemic goitre who are under medical supervision and in whom the fact as to whether they are goitrous or not is carefully recorded every quarter by a medical man

This community was inoculated at intervals of 13 years in the routine manner against typhoid, the inoculation on each occasion affecting a large proportion of the population but in each case leaving sufficient non inoculated to act as controls By making out cards for each ward and entering thereon the requisite facts it was an easy though laborious task, by sorting the cards under various headings fully to

[1] THE LANCET Feb 8th, 1913, p 369

analyse the case of any ward present in the asylum on any given date

Table W shows such an analysis applied to the wards present in the asylum in June, 1900 It will be seen from this table that the percentage of wards present in June, 1900, who became goitrous at any time is the same, or practically the same in the two groups, inoculated and non inoculated, being 48 1 and 48 0 respectively There is,

TABLE W —*An Analysis of all the Available Cases of all Wards present in the Asylum in June, 1900, and Classified according to whether they received Inoculation or not, and with regard to the Date of Inoculation to the First Report of their being Goitrous*

	Inoculated	Non inoculated.
Total number of wards present in June, 1900 whose cases were analysed ..	189	250
Number of these cases which were returned at *any time* as having been goitrous	91	120
Number of these cases which were returned as goitrous *before* the date of *inoculation*	46	57
Number of these cases which were returned as goitrous *after* the date of *inoculation*	45	63
Percentage of wards returned as goitrous at *any time*	48 1	48·0
Percentage of wards returned as goitrous *before* date of inoculation	24 3	22·8
Percentage of wards returned as goitrous *after* date of inoculation	23 8	25 2

however, in those who only became goitrous *after* the date of inoculation a slightly higher percentage affected in those who were *non* inoculated. While in the case of those who only became goitrous *before* the date of inoculation the percentage affected is slightly higher in those who subsequently were inoculated This might be taken to prove that the typhoid inoculation had a slight prophylactic effect in that the group of those inoculated were slightly more liable to goitre before the date of the inoculation, but after inoculation their liability slightly decreased But it must be remembered that the figures dealt with are very small, and that a further and closer analysis of the cases does not bear out this proposition at all.

Table X shows yearly the number of fresh goitres occurring in the wards in individuals who were present in the asylum in June, 1900, and who were then, and who had been up to that time, unaffected It will be seen that in the earlier years after the date of inoculation there is, if anything, a higher percentage of goitres occurring amongst those who were inoculated as compared with those who were not The non inoculated group of Table W make up their higher percentage by cases occurring in the later years after 1900, years in which it is improbable that the inoculation could carry any influence

TABLE X —*An Inquiry into the Prophylactic Effect of Typhoid Vaccine on Endemic Goitre*

Taking the cases of all wards present in the asylum in June, 1900 who were reported as goitrous only at a date subsequent to the date of typhoid inoculation, and the number of these reported in each year after the inoculation

—	After—								
	1st year	2nd year	3rd year	4th year	5th year	6th year	7th year	8th year	9th year
No *inoculated*	4	0	5	5	11	17	1	2	0
No. *non inoculated*	6	0	6	1	19	24	1	5	1
Percentage *inoculated* ...	8·9	0	11 1	11 1	31 4	37 7	2 2	4 4	0
Percentage *non inoculated*	9 5	0	9·5	1 3	30 1	36·0	1·5	7·9	1·5

Table Y is an attempt to analyse the curative action if any, of the typhoid inoculation of 1900 by taking the cases of all wards present in the asylum in June, 1900, who had already been reported as goitrous before the actual date of inoculation and showing the number of these who cease being reported goitrous in each year subsequent to 1900 It will be seen in this case that, taking the earlier years after the date of inoculation there is if anything a larger percentage of cases ceasing to be reported goitrous amongst those who had not been inoculated than amongst those who had been The inoculated group of Table W owe their higher percentage to *cases occurring* in the later years from 1900, when it is improbable that inoculation could have carried any *effect*

TABLE Y —*An Inquiry into the Curative Effect of Typhoid Vaccine on Endemic Goitre*

Taking the cases of all wards present in June, 1900, who had been reported as goitrous before the date of the inoculation and who subsequently ceased being reported as goitrous in the year between—

June and June	1900 1901	1901 1902	1902 1903	1903 1904	1904 1905	1905 1906	1906 1907	1907 1908	1908 1909	1909 1910	Total
No inoculated	20	3	2	1	3	7	2	1	0	0	39
No non inoculated	26	3	7	3	0	5	3	1	0	1	49
Percentage *inoculated*	51 3	7 4	5 1	2 7	7 4	18 0	5 1	2 7	0	0	100
Percentage *non inoculated*	54·9	5 9	13 7	5 8	0	9·5	5·8	1·9	0	1·9	100

From the above tables it is possible to conclude that taken collectively the typhoid inoculation of 1900 had no influence either for or against the goitre prevalent in the asylum The tables also show some indication of the fallacies that are liable to be fallen into in an investigation of this kind if large numbers are not analysed or the analysis is not carried out very closely

There remains the inoculation carried out in 1913 My appointment only being for two years, it was obviously impossible to carry out observations on these inoculations over a long period Further, the boys' department, or a little over half the asylum, was the subject of another experiment to ascertain the result of a bacteriologically clean water supply on the incidence of goitre, and was therefore beyond

TABLE A.—*Comparison of the Weekly Measurements of the Necks of Girls suffering from Goitre who were either Inoculated or Non inoculated for Typhoid*

Case.	Original measurement	First dose	End of first week	Second dose	End of second week	End of third week	End of fourth week	End of fifth week	End of sixth week
				Inoculated					
1	33 50	I	33 50	I	34 00	34 00	[illegible]	—	—
2	37 00	I	34·50	I	35 00	34·00	34·00	—	—
3	35 00	I	35·00	I	36 00	35 75	[illegible]	—	—
4	32·00	I	32·00	I	31·75	32·00	30·75	—	—
5	34·00	I	34·00	I	34·00	34·00	[illegible]	[illegible]	[illegible]
6	32·00	I	32·00	I	32·00	32 50	32 00	32·00	32·00
7	32·00	I	32·00	I	32 00	32 00	32 00	32·00	32·00
8	33·00	I	32·00	I	31·75	[illegible]	33·50	31·00	31 00
9	32 00	I	31·50	I	31 00	[illegible]	[illegible]	33·00	—
10	33·00	I	32·00	I	31·00	32·00	31·00	30·75	—
11	29·00	I	28 50	I	28 50	—	27 50	27·50	—
12	32·00	I	31·00	I	30·00	31·00	30·00	30·00	—
13	28·00	I	28 00	I	28 00	28·00	28·00	27·00	—
14	31 50	I	31·50	I	[illegible]	31 00	30·75	31·00	—
15	30·50	I	30·00	I	30·00	30·50	31 00	29·00	—
				Non inoculated					
16	36·00	—	35·50	—	36 50	35·50	34·50	—	—
17	36·00	—	35·00	—	34·00	34 00	35·00	—	—
18	30·00	—	30·00	—	28·00	29·00	30 00	—	—
19	35·00	—	34·00	—	33 00	31 50	—	—	—
20	32·00	—	32·00	—	32·00	—	—	—	—
21	26 50	—	26·00	—	25·00	—	—	—	—
				Average inoculated					
—	32 40	—	31 80	—	31 80	32 30	31 80	30·75	—
				Average non-inoculated					
—	34 20	—	32 00	—	31·20	32 70	—	—	—

Black figures = Decrease from original measurement
Italic = Increase from original measurement
Ordinary = No increase or decrease

All measurements were taken at the same time—i e., 10 A M —with a metal tape-measure over silver nitrate mark of largest circumference and recorded in centimetres.

the pale of my inquiry I therefore decided to judge the results of the inoculation by direct measurements of a number of goitres from amongst the goitrous girls inoculated

ntrolled by measurements of the goitres of goitrous girls n inoculated The girls were all measured the day fore the date of inoculation, and at intervals of two three days subsequently for a period of six weeks wards the end of this time the attendances, which re voluntary, not unnaturally became somewhat irregular pecially as no very striking result occurred to stimulate terest The measurements were taken at the same time, A.M, under as equal conditions as possible. Measurents were taken with a metal centimetre tape over the gest circumference, which was marked with silver nitrate ensure the same circumference being taken each time. ble A shows the result

It will be seen that there are certainly many decreases in e neck measurements after inoculation, but that there is equal amount of decrease to be noticed amongst the ck measurements of the *non* inoculated. In each group ere are cases of an increase instead of a decrease and in ch group there are many stationary cases In other rds taken individually the inoculation for typhoid of 13 had no effect on the cases of goitre occurring amongst e girls of the asylum.

The table also well illustrates the danger of drawing nclusions on a series of cases without comparison of ntrols. If there had been no controls to the inoculated oup of Table A, the inference would have been that the phoid inoculation had had a curative effect.

It now only remains to explain why there was this marked crease in goitre all round in 1913 That it was not due to e inoculation is obvious as the decrease is equal to those t inoculated as well as those inoculated The girls were ll using the same water supply that they had been doing

BLE B —*Showing the Relapses and the Remissions and Spontaneous Cures in 17 Cases of Goitre Occurring in Wards who Entered the Asylum after the last Quarter of 1905 and before the first Quarter of 1913 and are so in no way Influenced by any Typhoid Inoculations*

	1905. 1 2 3 4	1906 1 2 3 4	1907 1 2 3 4	1908. 1 2 3 4	1909 1 2 3 4	1910 1 2 3 4	1911 1 2 3 4	1912. 1 2 3 4
1	...GG	GGGG	G...G					
2		GG	G...G					
3	G...G							
4		GGG	GG...G					
5		GGG	GG...G					
6		GG	GG...G					
7	GG	GGGG	GGGG	G...G				
8			GGG	...G				
9	GGG	GGG	...G					
10		GGGG	G	GGGGG	GGGG	G...G		
11	G	G						
12							G..G	
13			G	GGGG	G			
14		G					G	
15	...GG	GGGG	GGGG	GGGGG	G	G	G	
16		G		GGG				
17		G					GG	GG

The underlined quarters are those in which the ward was in residence Sanawar and the quarter marked "G" is the quarter the ward was urned as goitrous.

nce about 1902, so a change of water supply could not have een the cause. I can put forward no suggestion as to the ause, but I can point out that endemic goitre anyway at anawar, is a disease with marked tendency to remissions elapses and spontaneous cures This has been pointed out McCarrison with figures that I was able to supply to im [1]

As a further example I may quote the cases of 87 wards hese wards all entered after the last quarter of 1904 and ft before the first quarter of 1913 and are therefore beyond ny influence of any typhoid inoculation operations Out of these 84, in 44 the goitre disappeared spontaneously before they left the asylum, while in 17 cases relapses or remissions occurred as detailed in Table B It is obvious in a disease with such a marked tendency to spontaneous fluctuation and recovery that a new treatment inaugurated without proper controls during a period of natural cessation of the disease will have success attributed to it which it does not deserve

In conclusion, typhoid inoculation at Sanawar had no effect in any way on the course of the endemic goitre there, either individually or collectively

[1] R. McCarrison: Journal of Indian Research vol. I No 3, January 1914 An Inquiry into the Causation of Goitre at the Lawrence Military Asylum Sanawar

A CONTRIBUTION TO THE ETIOLOGY OF EPIDEMIC CEREBRO-SPINAL MENINGITIS

BY M F H. GAMBLE L.R.C.P. & S. EDIN.,
MEDICAL SUPERINTENDENT HOSPITAL FOR INSANE, KEW VICTORIA, AUSTRALIA

UNTIL a few months ago, in common with the great majority of my fellow practitioners in Victoria, I knew nothing more about this disease than what I learned from the text-books when a student, for prior to the present epidemic we had little or no chance of seeing cases as the malady was non existent here in epidemic form The few sporadic cases that are said to have been met with in years past may or may not have been accurately diagnosed Doubtless true sporadic cases of cerebro spinal meningitis do occur in the slum and semi slum portions of any large city, and here the two causative factors in my opinion, are precisely those that light up the epidemic form in military camps and barracks

Turning to the vital statistics available, I find no reference whatever to the occurrence of cerebro-spinal meningitis in Victoria for the past 20 years [1] and in the comprehensive return contained in the Statistical Register for Victoria ending June, 1913 [2] not a single death from cerebro-spinal meningitis was recorded, nor was any case of the disease treated in any general hospital during that year in Victoria. Those who say that there have been numbers of cases of the disease every year in all parts of Victoria are asserting that which is untrue and misleading I am emphasising this matter as it has a material bearing on the views I desire to bring before the profession

Epidemic cerebro-spinal meningitis was unknown in Victoria until May 27th, 1915, it was then that the outbreak originated in the military training camp at Seymour Since that time I have given much thought to the problem of the etiology of the disease and have studied the literature on the subject As a result I became convinced that the accepted ideas concerning the causation and dissemination of the disease were erroneous and needed to be revised, if the profession could hope to deal adequately and rationally with the epidemic—that is in going to the root of the trouble and grappling with the actual sources of the infection In order to bring the matter under the notice of the authorities I wrote the following letter on August 17th to the *Medical Journal of Australia*, hoping that thereby discussion and interest would be stimulated —

SIR,—Recently I felt impelled to issue the following order to the staff of the large Government institution of which I have control I made use of the two blunt Anglo-Saxon words purposely to arrest the attention of, and to impress, my lay readers

Re Epidemic of Cerebro-spinal Meningitis.

As this fatal disease is almost certainly conveyed from one person to another by lice and by no other channel and as the disease is caused by the bite of a louse, I must order that the strictest precautions be taken by the whole staff to eradicate lice from the asylum Systematic examination of the patients their clothes, bed linen and beds must be conducted until further notice, and report is to be made at once if any vermin be discovered Neglect of this order may lead to many deaths amongst us

My reasons for giving such instructions were as follow —

1 That the present epidemic originated in Victoria at the Seymour Military Camp in winter time

2 That this camp was very inadequately supplied with water for bathing purposes, and the tents were overcrowded

[1] Victorian Year Book 1913-14
[2] Parliamentary Papers

3 That the soldiers, on the whole, are reluctant to take a daily cold shower in the open in winter, thus providing the soil on which pediculi corporis thrive so vigorously

4 Hundreds of the soldiers in any large training camp in the vicinity of a populous town suffer from gonorrhœa

5 The fact that he has gonorrhœa is sedulously concealed by the soldier for many reasons, and being mistreated, if treated at all, the case drags on indefinitely

6 The unwashed soldiers catch pediculi from one another and the vermin breed apace in their congenial habitat Other men, owing to the overcrowded tents, are infested, until the camp, generally, reeks with vermin. This, I regret to say, is no idle statement as regards the Seymour Camp at the time referred to

7 The soldier with a gonorrhœal discharge becomes verminous, and the pediculi naturally harbour in the pubic region which is fouled with the discharge, and they ingest myriads of gonococci

8 The arachnoid mater is purely a serous membrane, and, like the synovial membranes generally, is very prone to be affected by the gonococcus

9 Bacteriologically, the coccus most commonly found in cases of cerebro spinal meningitis is indistinguishable from the gonococcus

10 The gonococcus laden pediculi are conveyed by direct personal contact to other persons, and by their bite they implant the cocci in the lymph stream, and the germs are thence carried to the 'point of election" or most receptive tissue (for the gonococcus)—namely, the meninges of the brain and spinal cord—producing therein an intense inflammatory reaction, with exudation and signs of general infection The synovial membranes of the joint are frequently affected also

11 The person infected with gonorrhœa in the ordinary way—that is, per urethram—it appears likely to me has a certain immunity from secondary cutaneous infection by his pediculi

12 It is a well authenticated fact, I need scarcely say, that typhus fever (another filth disease) is conveyed from one person to another by means of fleas or other vermin infected with the typhus germ Malaria is also, of course, due to the bite of a germ laden mosquito, and plague to the bite of a flea from a bubonic rat

It is my firm conviction that cerebro-spinal meningitis in epidemic form is a true gonorrhœal inflammation of the arachnoid membrane of the brain and spinal cord, set up by the bites of gonococcal infected pediculi corporis To spray the nasal and buccal mucous membranes with eucalyptus or other antiseptic as a preventive, is a puerile waste of time and material One can find almost as many different cocci in the nose and throat of an apparently healthy person as there are days in the year From a consideration of the above facts the line of prophylactic treatment to be adopted to deal with this scourge is self evident Unhappily, so far as our knowledge at present avails, this is a disease for which prevention is the only cure

No notice was taken of this communication, but, feeling sure that the theory I was propounding had at least some foundation in common sense, I was constrained to return to the charge in a second letter to the *Journal* written on Sept 7th, as follows —

SIR,—Since writing my previous letter I have had an opportunity of reading a discussion on this disease, cerebro-spinal meningitis, held at the Royal Society of Medicine, England, in February last, and I now submit extracts from that discussion and my comments thereon (Proceedings, vol viii, No 5) The theory that the meningococcus is the specific organism of the disease is exploded, for Dr Osler says the results of the use of Flexner's meningococcic serum in the present European epidemic was far from satisfactory Secondly, a polyvalent serum, including the newest strain para meningococcus, is now recommended The use of a polyvalent serum in so definite a disease is unscientific, a mere groping about in the dark Polyvalent sera are not employed in typhoid, or diphtheria, no, because their specific organisms are known The true causal organism of cerebro-spinal meningitis has yet to be discovered The great variability of the strains of the germ at present held accountable for the disease is the bacteriologist's nightmare The disease is never pandemic in the sense that influenza is It has always been a soldiers' disease Oversea troops on their return home are often responsible for epidemics, and the majority of outbreaks have started in barracks It is the private soldier who invariably contracts the disease, not the officers, who live a more hygienic life It usually attacks young recruits Why? Because these youths especially if from the country, 'go the pace" when on leave in the city, with the usual consequences As to sources of infection, Dr Osler stresses the importance of carriers—i e, healthy persons who have meningococci in their naso-pharynx, whether or not they have been contacts As no explanation is forthcoming why such carriers are found amongst those who have never been exposed to the disease, and as it is undecided how the germ really reaches the meninges, whether through the ethmoidal sphenoid route or through the blood stream, I regard the naso-pharyngeal theory of infection as untenable Further, does the ethmoidal sphenoid route explain the dominance of the spinal involvement and symptoms? Why do so many of the so-called carriers fail to develop the disease? Are not the catarrhal symptoms associated with the disease due to the micrococcus catarrhalis rather than to the meningococcus? Almost every soldier trained at Seymour Camp had naso-pharyngeal catarrh for a time Why, then, were there no more cases of cerebro-spinal meningitis?

The real "carriers," I believe, are pediculi corporis, laden with ingested gonococci or full of serum from a meningitic patient Such ingested gonococci may undergo some mutation in the body of their host, the pediculus thus causing the bacteriological confusion as to the various "strains" found in the disease Would a bacteriologist kindly test this, as yet, uninvestigated opinion?

Preventive vaccination for this particular disease is not recommended either by the War Office or the Local Government Board in their respective recent memoranda It is a definitely preventable disease The present epidemic offers a golden opportunity for studying the etiology, and good would result if the branches of the Association in the several States devoted a portion of each monthly meeting to its discussion while the epidemic is with us, for in the coming summer when ablutions will be the order of the day, the disease will temporarily become quiescent, and may be forgotten

The scrappiness and inelegance of the above letter are due to its being a very condensed précis of the original, for which the editor could not afford space I ventured to send a copy of the latter to the P M O at Military Headquarters, Melbourne, in the hope that, if my views appealed to the military authorities, measures would be taken to deal efficiently, to my mind with the sources of infection at the various training camps throughout the Commonwealth In acting as I did I had no wish to cast reflections on the adequacy of the medical arm of the Forces I merely desired to point out that it was more than probable that the real cause of the epidemic was so patent and self evident that it was being overlooked, and that the disease was being fought with faulty strategy However that may be it is abundantly clear that the weapons used and the plan of campaign adopted have had no appreciable effect in staying the onward march of the foe, for up to the end of August last there had been under treatment in the Alfred Hospital alone 137 military and 16 civilian cases, while—up to Oct 9th the Health Board reported that 450 cases had occurred throughout the State

To an unprejudiced mind this indicates unquestionably that the preventive measures adopted so far have sadly failed in their purpose To make it understandable why I issued the order to my staff as shown in my first letter I should add that the patients in the institution are very frequently visited by trainees from the several camps, and I desired to prevent the importation of germ infested vermin into the asylum So far I have succeeded, as no case of cerebro-spinal meningitis has developed amongst the 1200 inhabitants Incidentally it should be mentioned that outbreaks of catarrhal infections, nasal and pharyngeal are of common occurrence in the institution, but why, I ask, has cerebro-spinal meningitis never yet broken out in so densely crowded a population if the naso-pharyngeal route of infection be the true one in this disease?

Our colleague Dr A Jeff Wood, honorary physician to the Children's Hospital, does not support the naso-pharyngeal theory, but thinks the avenue of infection is through the intestinal mucosa. From the admissions made by several speakers at the two recent discussions on the disease at the Victorian Branch of the Association the naso-pharyngeal theory seems in parlous straits It was stated that the reputed infective germ is so elusive, and the sources of error in tracing it so numerous, that to properly examine the naso-pharyngeal secretion of say, one contact or so-called carrier requires very elaborate and exceedingly recondite and careful bacteriological search covering four or five days of constant application by a highly skilled and experienced worker An interval of an hour or two between the taking of the swab and its examination renders such examination useless was the dictum of one speaker competent to give an opinion and endorsed by another of high repute Contrary

is with the case of diphtheria, the bacillus causing hich can be identified with the utmost ease and certainty y the veriest novice in bacteriology even if the swab has avelled from one end of Victoria to the other That we now with certainty the real causal organism of cerebro-pinal meningitis I very strongly doubt. The bacteriologist as almost run his quarry to earth, but not quite. And this ant of success is, I think, mainly due to the fact that he ; following the time-honoured though false scent.

No indubitably specific serum has yet been discovered hich will prevent, cure, or even modify the disease, though any have been tried with very varying results Naso-haryngeal disinfection either as a preventive or curative easure has proved inefficacious.[3] The drug most favoured y one metropolitan hospital is shown by another hospital to e inoperative. Vaccination for this disease is discount-nanced by the authorities best qualified to pronounce upon t In our local epidemic those nurses who are unvaccinated eem as secure from infection as those who have submitted o vaccination, and no nurse of either class has been nfected during the outbreak, and further it seemed mmaterial whether they wore respirators or not It appears o me that the catarrhal condition of the naso-pharynx seen n very many of the cases of cerebro-spinal meningitis is ather an indication that a general infection has occurred and does not mean that therein was to be found the portal of entry of the infective organism.

To indicate the prevalence of gonorrhœa in a training camp Dr Schlink, in giving evidence before Mr Justice Rich s Commission of Inquiry into the Liverpool Camp, New South Wales said that on the day he referred to there were in the quarantine compound 250 men suffering from that disease, and it is reasonable to assume that if there were that number of cases known to the authorities an equal, or even greater, number of cases pervaded the camp undiscovered. A trainee in the venereal compound not only loses his leave, but also loses about 4s or 5s pay each day There were about 4000 or 5000 trainees in the Liverpool Camp at the time referred to above.

Reduced to its essentials the prevailing epidemic in this State goes to prove 1. That there is an intimate etiological relationship between the gonococcus, pediculi corporis and epidemic cerebro-spinal meningitis 2. Until this year the disease was quite unknown in Victoria. 3 The epidemic originated in a military training camp at Seymour in winter 4 The source of the outbreak must then necessarily be looked for amongst the soldiery 5 The organism causing the disease is practically identical with the gonococcus a mutant form perhaps 6 Hundreds of the young trainees suffered from gonorrhœa in active form and naturally cloaked the fact so far as possible from the medical officers 7 There was an absence of strict medical supervision of these cases they were not detected, and even when discovered they were not adequately segregated before the epidemic began. I say this in no captious spirit, for the medical staff was not then numerically strong enough. 8. The personal habits of hundreds of the rank and file were faulty in the extreme, hence the camp became very verminous 9 The hygiene of the camp was bad from many points of view 10 Over 60 per cent of the female cases treated in the Melbourne Hospital gave a history of direct contact with soldiers, the women being for the most part of the factory girl and waitress" class. I venture to think that the common lodging houses and the public latrines provided their quota of cases amongst male civilians 11. The above facts point convincingly I think, to the actual sources of the epidemic, and as clearly indicate the methods to be adopted to stamp out the scourge in a rational manner and prevent its dissemination among the civilian population. 12. To make the trainees wash themselves thoroughly and regularly in camp, to discover and rigidly quarantine *all* those suffering from gonorrhœa (this being the more important) will effectually eradicate, and as surely prevent a recurrence of epidemic cerebro-spinal meningitis

As an addendum, I may mention that the epidemic under notice had a death rate of 52 per cent. the total number of deaths from the disease being 338 The outbreak came to an end in December

Kew Victoria, Australia.

[3] Medical Journal of Australia, Oct 2nd 1915

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL

A CASE OF FRACTURE OF THE TUBERCLE OF THE TIBIA

BY F M. NEILD, M.B., B S LOND

THE following case may be of interest on account of the rarity of the accident

Captain —— aged 45 eight months previous to the present accident came to me with synovitis of the right knee, sustained while alighting from a moving tram. Two years before something "went out" on the outer side of his knee-joint in consequence of which he was laid up for two or three weeks with water on the knee. Since then his knee had been weak and he had had frequent mild attacks of synovitis On this occasion treatment by massage and graduated contractions prevented any further trouble until the present accident On August 31st, 1914, I was driving behind a slowly moving tram when I saw the patient running from the pavement to the tram He seized an upright and attempted to board, but missed his footing, his right foot coming heavily in contact with the ground his knee being in a semi flexed position. He was obviously hurt as he clung on with his hand and did not attempt to get on the tram again The latter was quickly stopped. He told me that his knee had gone again and that it felt as if his knee-cap had suddenly gone up his thigh but that it did not hurt like his previous accidents. An enormous swelling could be both seen and felt through his trousers in the front of the upper part of the leg On more thorough examination it was found that the patella was intact that there was no fluid in the joint, but that there was a very large hæmatoma below the joint in front of the upper end of the tibia Owing to the swelling it was difficult to determine whether the patella was displaced or not A posterior splint and an ice-bag were applied, and he was removed to the nursing home He had very little pain, and next day there was still no fluid in the joint, nor was there at any subsequent period. The hæmatoma was tapped and a good deal of blood withdrawn An X ray photograph showed the patella displaced upwards and the upper part of the tibial tubercle torn off. The part torn off was apparently small and probably consisted of two or three fragments

I operated on Sept 8th A horseshoe-shaped incision was made with the convexity downwards and the skin flap dissected up The fragments of bone three in number, were attached to the lower end of the ligamentum patellæ and were widely separated from their true position. The fragments, along with the ligamentum, could be easily drawn down into position. The bony fragments were however, much too small to be fixed in position either by a screw or by a silver wire A hole was therefore drilled in the projecting lower portion of the tubercle and a stout piece of silk passed through One end of the silk was passed from behind forwards through the ligamentum patellæ just above the broken fragments of bone When the two ends were tied the fragments were in excellent position A few more stitches were put in between the ligament and the periosteum of the tibia The aponeurosis on each side of the ligamentum patellæ was badly torn. On the inner side it was possible to bring the torn edges together with silk sutures, on the outer side it was impossible as it was torn to shreds. The skin incision was closed with silkworm gut and the limb encased in plaster of Paris. On Sept 16th the plaster casing was removed and the stitches were taken out. Healing was by first intention. The plaster was unsatisfactory, so a McIntyre splint was substituted. From this day onwards daily massage and passive movements were adopted, and also the muscles of the thigh and leg were kept in good condition by electrical graduated contractions. On Oct. 14th the splint was removed during the day and active movements in bed were allowed On the 20th the use of the splint was discontinued and a few days later he was able to bend his knee to a right angle. On the 27th he left his bed and walked about with the aid of crutches while on the 30th he could, while sitting on the edge of the bed raise his foot from a dependent position. On Nov 4th he could get about easily with the aid of only one stick. Flexion and extension of the joint were perfect, but there was too much lateral movement. Owing to the treatment adopted the muscles of the thigh on the injured side were in better condition than those on the sound limb The patient returned to sea early in December about three

months after the operation His only complaint now is that the joint feels a little weak at the sides He does not find it necessary to wear a bandage or knee-cap

There is very little in text-books of surgery on the subject of separation or fracture of the tubercle of the tibia The universal recommendation is to wire, screw, or peg the fragment into place In this case it was impossible to carry out any of these directions, but it was a very simple matter to get the fragments into perfect position in the manner described

Shanghai

PLACENTA PRÆVIA CENTRALIS

BY WILLIAM ROBERTSON, M D GLASG

I HAD slight notice of the probable condition of the following case from the husband, who told me that his wife (European) had had hæmorrhage three or four times during her present pregnancy

The patient, aged 36, who was in her sixth pregnancy, "felt life," and had no untoward experience beyond the slight hæmorrhages referred to These were controlled by bromide and ergot, and rest in bed I had no opportunity of vaginal examination until finally being called in for accouchement The pregnancy had reached full term, and fœtal life was distinct Vaginal examination showed a centrally placed placenta prævia The os was of the size of a crown piece, thin, soft, and dilateable Examination brought away a little blood Prudence seemed to indicate plugging The mother was anæmic, with not too good a pulse Previous labours were normal and not prolonged Plugging was performed manually without distress or much shock After a good rest and nourishment the plugs were removed and found only stained The os was still further dilated Under chloroform internal version was performed The placenta was found to be very thin, so that the waters and the head, not yet engaged, could be readily felt A foot was brought down and the child, a large one, was safely turned Before the head was engaged the placenta came away entire An effort was made to deliver the child as rapidly as possible, but the head stuck and delayed delivery for half an hour The child's head was 14 inches in circumference and the mother was of small build The child was born dead, as was to be expected The mother now required all attention She had become pale, faint, and pulseless, but answered to the usual restoratives Very little blood was lost during manipulations and none afterwards A few tabloids of salt and citrate were placed on the placental area Recovery was rapid and uneventful

One might have thought of perforating the placenta allowing the waters to escape, and letting the case proceed in the usual way The child s head would, however at once have put the whole placenta out of functioning, and besides the length and shock of labour would have invalidated the life of the mother, and certainly the life of the child Version therefore seemed to offer a chance for both The slight hold the placenta had on the cervix was disconcerting I made no effort to detach it beyond perforating it for version, which was an easy matter The arm in the os prevented a too rapid loss of the waters and facilitated seizure of a foot The placenta came away, of course, completely shorn of membranes These had to be subsequently very carefully removed

St. Marks Cape Province South Africa

CONVALESCENT HOME AT GRANGE OVER SANDS — On August 7th Mr Charles Duncan, M P , opened the new convalescent home of the Workmen's Clubs Union which has been erected at a cost of £20 000 at Grange-over Sands The building will accommodate 66 residents

EDINBURGH ROYAL INFIRMARY THE APPOINTMENT OF SENIOR STUDENTS TO RESIDENT POSTS —At a meeting of the managers of the Edinburgh Royal Infirmary held on August 7th the following appointments were made — Resident physicians James M Tyrrell, final year student, to Sir Robert Philip, and Harold Budler, final year student, to Professor W Russell Resident surgeons Gerald W Grant final year student, to Professor F M Caird, J McAuslin, final year student to Mr N T Brewis, Adam Prentice to Mr D Wallace, Duncan Cook final year student, to Mr F E Jardine Surgical out patient department John Allison and J Laurie Lamont, both final year students, to Mr Jardine

Reviews and Notices of Books.

Pathological Lying, Accusation, and Swindling A Study in Forensic Psychology

By WILLIAM HEALEY, A B , M D , Director, Psychopathic Institute, Juvenile Court, Chicago, Associate Professor, Nervous and Mental Diseases, Chicago Polyclinic, and MARY TENNEY HEALEY, B L London William Heinemann 1916 Pp 287 Price 10s 6d net

THE main purpose of this work is to establish a "closer definition of pathological lying than has hitherto been offered " The authors evidently assume that the existence of such an entity is generally accepted, but contend that previous writers have employed an insufficiently clear terminology, and have erroneously included under this heading cases of epilepsy, insanity, and mental defect They regard ' pathological lying" as a "type of delinquency,' and at the outset of their book essay to define it as "falsification, entirely disproportionate to any discernible end in view engaged in by a person who, at the time of observation cannot definitely be declared insane, feeble minded or epileptic Such lying manifests itself, most frequently by far, over a period of years or even a life time.' In the course of the introductory chapter it is stated that lawyers or other professional specialists have slight knowledge of this subject, and that one reason for this slight knowledge is the fact that almost nothing has been written on it in English. The second chapter gives some account of much German and a little French, literature on the subject, and we learn from this that the generally accepted term in Germany for ' pathological lying " is *pseudologia phantastica*—a term that at least in *this* context is not luciferous

After a careful perusal of the book before us which unquestionably contains many faithful and really interesting reports of such cases as are well known to medical psychologists conversant with children or "delinquents " or with both of these groups, we are unable to attribute any scientific or practical value to the conception of *pseudologia phantastica* in its relation either to psychology, criminology, or penology It appears to us that the very definition laid down by the authors, and the terms used by them in other parts of the book, imply that they regard insanity and mental defect as concerned with the intellect alone The cases of 'pathological lying " which they appear to regard rightly as essentially consisting in disorder of conduct, are explicitly excluded from the class of "insane" persons because of the absence of delusions, and from the class of "mental defectives,' or feeble minded, because, according to the value given to these terms by the authors, the word *mind* excludes all mental factors other than that of the intellect If then, the disorder of conduct which is inseparable from the conception of "pathological lying," as presented to us in this book, is to be regarded as a type of "delinquency" unconnected with any disorder of intellect, or indeed with discoverable disorder of any kind, whether "mental" or "physical" it follows that the creation of a closely defined class of delinquents under the title of pathological liars is by no means helpful but, on the contrary, both confusing and meaningless It seems to us that most of the cases so vividly described in this book are easily referable to mental disorder, from "insanity ' to "mental defect" in its various expressions, and especially to the certainly ill named but justly recognised category of "moral imbeciles," or persons who inherently lack the capacity of being duly educated for social life in spite of fair general intelligence.

Undue multiplication of ill defined classes under new names is greatly to be deprecated, especially in connexion with matters that have a practical bearing The study of disorders of conduct supplies the basic test of mental disorder of all kinds, whether such disorder be styled "insanity" or "mental defect", it underlies moreover the problems of grading criminal responsibility and of the appropriate treatment of criminals The authors of this book indeed appear to appreciate in some degree the difficulty of making a "close' definition of pathological lying by inserting a chapter on "borderland cases, but they have distinctly failed to establish the contention that the specially defined pathological liars are ' mentally normal "

History of the Royal College of Surgeons in Ireland and of the Irish Schools of Medicine, including a Medical Bibliography and a Medical Biography

By Sir CHARLES A. CAMERON, C B Second edition, revised and enlarged London Simpkin, Marshall, and Co , Dublin Fannin and Co , Edinburgh J Thin 1916 Pp 882

THE history of the corporations of their own profession is, or should be, always of interest to medical men and Sir Charles Cameron's "History of the Royal College of Surgeons in Ireland" is a case in point, and a book made all the more attractive by its very discursiveness, for the inclusion of medical bibliography and biography affords its author great scope for giving his readers many lifelike pictures of past times To deal first with the history of the College The Irish surgeons were primarily, like their brethren in other lands, incorporated with the barbers, and a Guild of Barbers was established by Henry VI in Dublin in the year 1446 on St Luke's day, the Guild being established for the promotion and exercise of the art of chirurgery By Elizabeth's time there were surgeons in Dublin who were not incorporated with the barbers, but formed a society by themselves This society was ordered, 1577, by a charter of the Queen to be incorporated with that of the barbers It is worthy of note that Henry's charter provided for the admission of women Another charter was granted by James II in 1687 In 1780 the Dublin Society of Surgeons resolved to apply for a charter incorporating the surgeons of Dublin into a Royal College Naturally the barber surgeons objected, but the charter was granted all the same in 1784, and the first President of the Royal College was Samuel Croker King, who was also notable for having saved the life of a child who afterwards became the great Duke of Wellington A second charter was granted in 1829, the most important feature of which was the giving powers to the College to admit to examination candidates who were not indentured apprentices Supplemental charters were granted in 1844 and 1885

For the general medical reader the most interesting portions of Sir Charles Cameron's work will probably be the biographical and bibliographical sections In 1775 John Gilborne, M D , wrote the 'Medical Review a Poem , being a Panegyric on the Faculty of Dublin, Physicians, Surgeons, and Apothecaries marching in procession to the Temple of Fame." From this poem Sir Charles Cameron quotes extensively Though we cannot say that the divine fire is present, yet the bard certainly succeeds in drawing a striking portrait—

> The fractur'd Skull to Samuel Croker King
> The broken Limb Wounds and Luxations bring
> There s no Disaster but he can set right,
> With Splints, Trepan and Bandage not too tight."

There is one blemish to which we must refer in an other wise admirable book and that is the extraordinary number of misprints especially in Latin passages Nearly every Latin title of a book quoted has at least one misprint, and some have three or four, while even such a well worn tag as "Non omnis moriar" appears as "Non omnis morior" In other places we find "carundem" for 'earundem," "com plarium" for "complurium," "templina" for "templum," and "parulus" instead of, we imagine, "paratus" Such errors should not appear in any book, least of all one dealing with a learned body and in a revised edition

CURRENT GERMAN MEDICINE

Wounds of the Larynx —We are indebted to Dr Dundas Grant for a translation of Professor Körner's (Rostock) article dealing with three cases of gunshot injury of the larynx (*Zeitschr f Ohrenheilk*, March, 1915)

CASE 1 *Shot through larynx and pharynx below vocal cords from right and in front to the left backwards* —There was no pain but loss of voice at the time (August 28th) There was some throwing up of blood without cough and for six days pain on swallowing The left vocal cord and arytenoid cartilage were almost in the middle line, both on respi ration and phonation Below the commissure especially to the right there was a greyish red somewhat hummocky swelling The shot must have been directly under the left arytenoid cartilage The condition gradually settled down, and on Oct. 16th the movements of the arytenoid cartilage and vocal cords were quite normal; the irregular swelling under the commissure had become converted into a cicatrix in the form of a horizontal sharp-edged fold like structure which projected for about 2 mm into the lumen of the larynx

Professor Körner's comment is as follows This was a shot through the larynx and hypo-pharynx. A small infantry bullet had passed from in front through the thyroid cartilage somewhat on the right of the middle line, imme diately under the commissure of the vocal cords It left the larynx below the left crico-arytenoid joint, it must have perforated the wall of the hypo pharynx on the left side in front and behind in order then to leave the body below the nape of the neck We cannot tell whether the ball took in with it portions of the collar of the uniform The results were simply a temporary fixation of the left arytenoid cartilage and a small scar under the commissure Nothing which the experience of previous wars would have led us to expect as the inevitable result of such an injury was present, there was no great hæmorrhage, no extensive destruction of cartilage, and no dangerous œdema The prophylactic tracheotomy, which was formerly so strongly recommended, was not carried out, and the result showed that in this case it would have been quite superfluous

CASE 2 *Shot on the right side through the lower jaw recovery with ankylosis of the right crico arytenoid joint* —The soldier was shot on Sept 16th, 600 metres distance through the right horizontal portion of the lower jaw and the right side of the neck as he had bent forwards in order to lie down At the moment of injury he observed a singing and humming noise in the head he fell forwards and for a short time was quite deafened A soldier fastened the first dressing on the orifice of entrance, but no orifice of exit could be seen Later when he got to the dressing station, the exit was found and bandaged Immediately after the shot the voice was weak and hoarse but there was no dyspnœa nor expectoration of blood. On the other hand there was a slight pain on the right side of the neck during swallowing and the mouth could not be properly opened while chewing was impossible and there was a feeling of numbness of the right side of the lower jaw He was kept for a week and a half in a hospital and then treated in a garrison hospital at Rostock On Oct. 12th—that is 26 days after the wound—Professor Körner saw him for the first time and found him in good condition, except for the pain on opening the mouth and chewing and the hoarseness The orifice of entrance was 12 mm laterally distant from the right corner of the mouth and about 3 mm below the level of the junction of the lips The orifice of exit, which was not yet completely healed was 3 cm. to the right of the spinous process of the seventh cervical vertebra it was about 3 cm across About the middle of the horizontal part of the lower jaw on the right there was a thickening of the bone perceptible to sight and touch and somewhat tender although the mouth could not be widely opened it was still possible to inspect the buccal cavity and meso-pharynx, as well as to carry out indirect laryngoscopy Internally there was no abnormality in the lower jaw All the teeth were present and were sound The structures of the palate were normal and the tongue movable in all directions. The right vocal cord was immovable in the middle line during both respiration and phonation; its edge was quite straight the right arytenoid cartilage showed no movements and did not hang forwards otherwise the picture of the larynx was completely normal there was no swelling or extravasation of blood. On the left side the movements of the arytenoid cartilage and vocal cord were unimpaired The voice sounded somewhat thick, and on inquiry the wounded man stated that he noticed a slight difficulty in breathing on exertion. To the touch externally the larynx showed no difference between the right and the left sides but there was some tenderness on pressure on the posterior part of the right half of the thyroid cartilage The muscles supplied by the right spinal accessory nerve were unaffected. An X ray examination of the lower jaw revealed a grooved fracture running obliquely backwards and inwards, but without affecting the roots of the teeth On Oct. 30th the laryngoscopic appearance was unchanged the voice was quite clear the mouth could be opened while the swelling of the jaw was scarcely to be detected and the orifice of exit had healed

The author comments This was a subcutaneous glancing shot on the right side of the larynx, it injured the posterior part of the right half of the thyroid cartilage, with this there was a lasting fixation of the right crico-arytenoid joint, as the result of which the vocal cords stayed in the middle line The shot does not seem to have gone to the hypo pharynx, as no trace of blood was expelled The fact that the median position of the vocal cord did not depend upon an injury of the vagus nerve was shown by the fact that the arytenoid cartilage was not inclined forwards, and 44 days after the injury there was no concavity of the border of the vocal cords. An isolated injury of the trunk of the vagus so high up without injury of the great vessels or the other neighbouring cranial nerves is almost out of the question, and the deep, descending, recurrent branch cannot have been struck in this case, as at the level of the wound it must already have broken up into its muscular branches Again, the posterior crico-arytenoid muscles cannot have been struck, as the hypo-pharynx was undamaged

CASE 3 *Shot in the right side of the face and neck with injury to the vagus the accessory and hypoglossal nerves* —On August 23rd a shot from a distance of 250 metres struck the soldier on the right side of the face and neck. He did not lose consciousness at once but observed double vision and interference with his speech which became indistinct hoarse, and weak so that it was difficult for him to make himself understood Further he was unable to open his mouth wide or to lift the right arm completely There was no bleeding from the mouth nose or ear and no difficulty in breathing A few days later the bullet was felt further back in the neck and extracted by an incision. Fifty five days after the injury he was seen by Professor Körner for the first time Apart from the above mentioned disturbances which were still present he appeared both mentally and bodily sound There was found slight paralysis of the sixth nerve and on both sides neuritis of the optic nerve the mouth could only be opened to a small extent the teeth separating little more than 2 cm the tongue when pro truded pointed to the right The soft palate during retching and phonation was drawn strongly to the left but the posterior wall of the

months after the operation His only complaint now is that the joint feels a little weak at the sides He does not find it necessary to wear a bandage or knee-cap

There is very little in text-books of surgery on the subject of separation or fracture of the tubercle of the tibia The universal recommendation is to wire, screw, or peg the fragment into place In this case it was impossible to carry out any of these directions, but it was a very simple matter to get the fragments into perfect position in the manner described

Shanghai

PLACENTA PRÆVIA CENTRALIS

BY WILLIAM ROBERTSON, M D GLASG

I HAD slight notice of the probable condition of the following case from the husband, who told me that his wife (European) had had hæmorrhage three or four times during her present pregnancy

The patient, aged 36, who was in her sixth pregnancy, "felt life," and had no untoward experience beyond the slight hæmorrhages referred to These were controlled by bromide and ergot, and rest in bed I had no opportunity of vaginal examination until finally being called in for accouchement The pregnancy had reached full term, and fœtal life was distinct Vaginal examination showed a centrally placed placenta prævia The os was of the size of a crown piece, thin, soft, and dilateable Examination brought away a little blood Prudence seemed to indicate plugging The mother was anæmic, with not too good a pulse Previous labours were normal and not prolonged Plugging was performed manually without distress or much shock. After a good rest and nourishment the plugs were removed and found only stained The os was still further dilated Under chloroform internal version was performed The placenta was found to be very thin, so that the waters and the head, not yet engaged, could be readily felt A foot was brought down and the child, a large one, was safely turned Before the head was engaged the placenta came away entire An effort was made to deliver the child as rapidly as possible, but the head stuck and delayed delivery for half an hour The child's head was 14 inches in circumference and the mother was of small build The child was born dead, as was to be expected The mother now required all attention She had become pale, faint, and pulseless, but answered to the usual restoratives Very little blood was lost during manipulations and none afterwards A few tabloids of salt and citrate were placed on the placental area Recovery was rapid and uneventful

One might have thought of perforating the placenta allowing the waters to escape, and letting the case proceed in the usual way The child's head would, however at once have put the whole placenta out of functioning, and besides the length and shock of labour would have invalidated the life of the mother, and certainly the life of the child Version therefore seemed to offer a chance for both The slight hold the placenta had on the cervix was disconcerting I made no effort to detach it beyond perforating it for version, which was an easy matter The arm in the os prevented a too rapid loss of the waters and facilitated seizure of a foot The placenta came away, of course, completely shorn of membranes These had to be subsequently very carefully removed

St Marks Cape Province South Africa

CONVALESCENT HOME AT GRANGE OVER SANDS — On August 7th Mr Charles Duncan, M P, opened the new convalescent home of the Workmen's Clubs Union which has been erected at a cost of £20 000 at Grange-over Sands The building will accommodate 66 residents

EDINBURGH ROYAL INFIRMARY THE APPOINTMENT OF SENIOR STUDENTS TO RESIDENT POSTS —At a meeting of the managers of the Edinburgh Royal Infirmary held on August 7th the following appointments were made — Resident physicians James M Tyrrell, final year student, to Sir Robert Philip, and Harold Budler final year student, to Professor W Russell Resident surgeons Gerald W Grant, final year student, to Professor F M Caird, J McAuslin, final year student, to Mr N T Brewis, Adam Prentice to Mr D Wallace, Duncan Cook final year student, to Mr F E Jardine Surgical out-patient department John Allison and J Laurie Lamont, both final year students, to Mr Jardine

Reviews and Notices of Books.

Pathological Lying, Accusation, and Swindling A Study in Forensic Psychology

By WILLIAM HEALEY, A.B, M D, Director, Psychopathic Institute, Juvenile Court, Chicago, Associate Professor, Nervous and Mental Diseases, Chicago Polyclinic, and MARY TENNEY HEALEY, B L London William Heinemann 1916 Pp 287 Price 10s 6d net

THE main purpose of this work is to establish a "closer definition of pathological lying than has hitherto been offered" The authors evidently assume that the existence of such an entity is generally accepted, but contend that previous writers have employed an insufficiently clear terminology, and have erroneously included under this heading cases of epilepsy, insanity, and mental defect They regard "pathological lying" as a "type of delinquency," and at the outset of their book essay to define it as "falsification, entirely disproportionate to any discernible end in view engaged in by a person who, at the time of observation cannot definitely be declared insane, feeble minded, or epileptic Such lying manifests itself, most frequently by far, over a period of years or even a life time." In the course of the introductory chapter it is stated that lawyers or other professional specialists have slight knowledge of this subject, and that one reason for this slight knowledge is the fact that almost nothing has been written on it in English. The second chapter gives some account of much German, and a little French, literature on the subject, and we learn from this that the generally accepted term in Germany for "pathological lying" is *pseudologia phantastica*—a term that at least in *this* context is not luciferous

After a careful perusal of the book before us, which unquestionably contains many faithful and really interesting reports of such cases as are well known to medical psychologists conversant with children or "delinquents," or with both of these groups, we are unable to attribute any scientific or practical value to the conception of *pseudologia phantastica* in its relation either to psychology, criminology, or penology It appears to us that the very definition laid down by the authors, and the terms used by them in other parts of the book, imply that they regard insanity and mental defect as concerned with the intellect alone. The cases of "pathological lying" which they appear to regard rightly as essentially consisting in disorder of conduct are explicitly excluded from the class of "insane" persons because of the absence of delusions, and from the class of "mental defectives," or feeble minded, because, according to the value given to these terms by the authors, the word *mind* excludes all mental factors other than that of the intellect If then, the disorder of conduct which is inseparable from the conception of "pathological lying," as presented to us in this book, is to be regarded as a type of "delinquency" unconnected with any disorder of intellect, or indeed with discoverable disorder of any kind, whether "mental" or "physical" it follows that the creation of a closely defined class of delinquents under the title of pathological liars is by no means helpful but on the contrary, both confusing and meaningless It seems to us that most of the cases so vividly described in this book are easily referable to mental disorder, from "insanity" to "mental defect" in its various expressions, and especially to the certainly ill named but justly recognised category of "moral imbeciles," or persons who inherently lack the capacity of being duly educated for social life in spite of fair general intelligence

Undue multiplication of ill defined classes under new names is greatly to be deprecated especially in connexion with matters that have a practical bearing The study of disorders of conduct supplies the basic test of mental disorder of all kinds, whether such disorder be styled "insanity" or "mental defect", it underlies moreover the problems of grading criminal responsibility and of the appropriate treatment of criminals The authors of this book indeed appear to appreciate in some degree the difficulty of making a "close definition of pathological lying" by inserting a chapter on "borderland" cases, but they have distinctly failed to establish the contention that these specially defined pathological liars are "mentally normal"

History of the Royal College of Surgeons in Ireland and of the Irish Schools of Medicine, including a Medical Bibliography and a Medical Biography

By SIR CHARLES A. CAMERON, C B Second edition, revised and enlarged London Simpkin, Marshall, and Co, Dublin Fannin and Co, Edinburgh J Thin 1916 Pp 882

THE history of the corporations of their own profession is, or should be, always of interest to medical men and Sir Charles Cameron s 'History of the Royal College of Surgeons in Ireland" is a case in point and a book made all the more attractive by its very discursiveness, for the inclusion of medical bibliography and biography affords its author great scope for giving his readers many lifelike pictures of past times. To deal first with the history of the College. The Irish surgeons were primarily like their brethren in other lands, incorporated with the barbers and a Guild of Barbers was established by Henry VI in Dublin in the year 1446 on St Luke's day, the Guild being established for the promotion and exercise of the art of chirurgery By Elizabeth's time there were surgeons in Dublin who were not incorporated with the barbers, but formed a society by themselves This society was ordered, 1577, by a charter of the Queen to be incorporated with that of the barbers It is worthy of note that Henry's charter provided for the admission of women Another charter was granted by James II in 1687 In 1780 the Dublin Society of Surgeons resolved to apply for a charter incorporating the surgeons of Dublin into a Royal College Naturally the barber surgeons objected but the charter was granted all the same in 1784, and the first President of the Royal College was Samuel Croker King, who was also notable for having saved the life of a child who afterwards became the great Duke of Wellington. A second charter was granted in 1829, the most important feature of which was the giving powers to the College to admit to examination candidates who were not indentured apprentices Supplemental charters were granted in 1844 and 1885

For the general medical reader the most interesting portions of Sir Charles Cameron s work will probably be the biographical and bibliographical sections In 1775 John Gilborne, M D wrote the 'Medical Review a Poem, being a Panegyric on the Faculty of Dublin, Physicians Surgeons and Apothecaries marching in procession to the Temple of Fame.' From this poem Sir Charles Cameron quotes extensively Though we cannot say that the divine fire is present yet the bard certainly succeeds in drawing a striking portrait—

> 'The fractur d Skull to Samuel Croker King
> The broken Limb, Wounds, and Luxations bring
> There s no Disaster but he can set right,
> With Splints, Trepan, and Bandage not too tight"

There is one blemish to which we must refer in an otherwise admirable book, and that is the extraordinary number of misprints especially in Latin passages Nearly every Latin title of a book quoted has at least one misprint and some have three or four while even such a well worn tag as "Non omnis moriar appears as "Non omnis morior" In other places we find 'carundem for earundem," "com plarium' for 'complurium,' 'templina" for templum," and 'parulus" instead of, we imagine, "paratus' Such errors should not appear in any book least of all one dealing with a learned body and in a revised edition

CURRENT GERMAN MEDICINE

Wounds of the Larynx —We are indebted to Dr Dundas Grant for a translation of Professor Körner s (Rostock) article dealing with three cases of gunshot injury of the larynx (*Zeitschr f Ohrenheilk* March 1915).

CASE 1 *Shot through larynx and pharynx below vocal cords from right and in front to the left backwards* —There was no pain, but loss of voice at the time (August 28th) There was some throwing up of blood without cough, and for six days pain on swallowing The *left* vocal cord and arytenoid cartilage were almost in the middle line both on respiration and phonation. Below the commissure especially to the right, there was a greyish red, somewhat hummocky swelling The shot must have been directly under the left arytenoid cartilage. The condition gradually settled down and on Oct. 16th the movements of the arytenoid cartilage and vocal cords were quite normal the irregular swelling under the commissure had become converted into a cicatrix in the form of a horizontal sharp-edged fold like structure which projected for about 2 mm. into the lumen of the larynx

Professor Körner s comment is as follows This was a shot through the larynx and hypo-pharynx. A small infantry bullet had passed from in front through the thyroid cartilage somewhat on the right of the middle line, immediately under the commissure of the vocal cords It left the larynx below the left crico-arytenoid joint, it must have perforated the wall of the hypo-pharynx on the left side in front and behind in order then to leave the body below the nape of the neck We cannot tell whether the ball took in with it portions of the collar of the uniform The results were simply a temporary fixation of the left arytenoid cartilage and a small scar under the commissure Nothing which the experience of previous wars would have led us to expect as the inevitable result of such an injury was present, there was no great hæmorrhage, no extensive destruction of cartilage, and no dangerous œdema The prophylactic tracheotomy, which was formerly so strongly recommended was not carried out, and the result showed that in this case it would have been quite superfluous

CASE 2. *Shot on the right side through the lower jaw recovery with ankylosis of the right crico-arytenoid joint* —The soldier was shot on Sept 16th 600 metres distance through the right horizontal portion of the lower jaw and the right side of the neck, as he had bent forwards in order to lie down. At the moment of injury he observed a singing and humming noise in the head he fell forwards and for a short time was quite deafened A soldier fastened the first dressing on the orifice of entrance, but no orifice of exit could be seen Later when he got to the dressing station, the exit was found and bandaged Immediately after the shot the voice was weak and hoarse but there was no dyspnœa nor expectoration of blood. On the other hand, there was a slight pain on the right side of the neck during swallowing and the mouth could not be properly opened while chewing was impossible, and there was a feeling of numbness of the right side of the lower jaw He was kept for a week and a half in a hospital and then treated in a garrison hospital at Rostock On Oct. 12th—that is 26 days after the wound—Professor Körner saw him for the first time and found him in good condition except for the pain on opening the mouth and chewing and the hoarseness The orifice of entrance was 12 mm laterally distant from the right corner of the mouth and about 3 mm below the level of the junction of the lips The orifice of exit, which was not yet completely healed was 3 cm. to the right of the spinous process of the seventh cervical vertebra it was about 3 cm. across About the middle of the horizontal part of the lower jaw on the right there was a thickening of the bone perceptible to sight and touch and somewhat tender although the mouth could not be widely opened it was still possible to inspect the buccal cavity and meso-pharynx, as well as to carry out indirect laryngoscopy Internally there was no abnormality in the lower jaw All the teeth were present and were sound. The structures of the palate were normal and the tongue movable in all directions. The right vocal cord was immovable in the middle line during both respiration and phonation its edge was quite straight the right arytenoid cartilage showed no movements and did not hang forwards otherwise the picture of the larynx was completely normal there was no swelling or extravasation of blood. On the left side the movements of the arytenoid cartilage and vocal cord were unimpaired The voice sounded somewhat thick, and on inquiry the wounded man stated that he noticed a slight difficulty in breathing on exertion. To the touch externally the larynx showed no difference between the right and the left sides but there was some tenderness on pressure on the posterior part of the right half of the thyroid cartilage The muscles supplied by the right spinal accessory nerve were unaffected. An X ray examination of the lower jaw revealed a grooved fracture running obliquely backwards and inwards, but without affecting the roots of the teeth. On Oct. 30th the laryngoscopic appearance was unchanged the voice was quite clear the mouth could be opened, while the swelling of the jaw was scarcely to be detected and the orifice of exit had healed.

The author comments This was a subcutaneous glancing shot on the right side of the larynx, it injured the posterior part of the right half of the thyroid cartilage, with this there was a lasting fixation of the right crico-arytenoid joint, as the result of which the vocal cords stayed in the middle line The shot does not seem to have gone to the hypo-pharynx, as no trace of blood was expelled The fact that the median position of the vocal cord did not depend upon an injury of the vagus nerve was shown by the fact that the arytenoid cartilage was not inclined forwards, and 44 days after the injury there was no concavity of the border of the vocal cords. An isolated injury of the trunk of the vagus so high up without injury of the great vessels or the other neighbouring cranial nerves is almost out of the question, and the deep, descending recurrent branch cannot have been struck in this case as at the level of the wound it must already have broken up into its muscular branches Again, the posterior crico-arytenoid muscles cannot have been struck, as the hypo-pharynx was undamaged.

CASE 3. *Shot in the right side of the face and neck, with injury to the vagus the accessory and hypoglossal nerves* —On August 23rd a shot from a distance of 250 metres struck the soldier on the right side of the face and neck. He did not lose consciousness at once, but observed double vision and interference with his speech, which became indistinct hoarse, and weak so that it was difficult for him to make himself understood. Further he was unable to open his mouth wide or to lift the right arm completely There was no bleeding from the mouth nose or ear and no difficulty in breathing A few days later the bullet was felt further back in the neck and extracted by an incision. Fifty five days after the injury he was seen by Professor Körner for the first time. Apart from the above-mentioned disturbances which were still present he appeared both mentally and bodily sound There was found slight paralysis of the sixth nerve and on both sides neuritis of the optic nerve the mouth could only be opened to a small extent the teeth separating little more than 2 cm the tongue when protruded pointed to the right The soft palate during retching and phonation was drawn strongly to the *left*, but the posterior wall of the

pharynx contracted equally on both sides In the Killian position and after depression of the tongue downwards and forwards with Czermak's uvula holder (*sic*) laryngoscopy could be effected the epiglottis pointed from below upwards and to the left the right vocal cord was immobile in the position of abduction the left one overstepped the middle line by a few millimetres during voice production, but not sufficiently to touch the right one The right arytenoid cartilage fell forward to some extent the voice was toneless and accompanied by an escape of air but articulation was very little impeded by the paralysis of the right hypoglossal nerve Comparative tests for parotid secretion and taste on both sides were undecisive owing to the closure of the mouth. In the same way it was impossible to test the sensibility of the larynx The right sterno-mastoid and trapezius were paralysed and atrophic and gave the reaction of degeneration. The right shoulder hung down in the manner characteristic of paralysis of the accessory nerve and the arm could not be raised above the horizontal The pulse during absolute rest was 96 in the minute By the middle of November the condition had not altered, except that the mouth could be opened more widely

Professor Körner adds In this case it was not the larynx itself but the vagus nerve supplying it which was struck, the bullet penetrated the right zygoma, broke through the ascending process of the right inferior maxilla, and lodged in the right side of the neck under the skin where the spinal accessory nerve comes forward beneath the middle of the posterior margin of the sterno-mastoid muscle The zygoma seems only to have been damaged externally, and no traumatic inflammation of the antrum supervened Paralysis of the sixth nerve, indicated by double vision immediately on receipt of the wound, is out of the question One might suppose that it was an injury of the abducens nerve, but the splintering of the bone which reaches from the zygoma into the orbits should directly involve the external rectus muscle In regard to this the X rays gave us no enlightenment To this we add bilateral optic neuritis, which at first sight may be explained by bleeding in the skull, to which we might at the same time attribute the sixth nerve paralysis The closure of the mouth may be explained by the fracture of the cornoid process of the lower jaw The vagus nerve must have been struck high up soon after its exit from the skull, but whether it was above the giving off of the superior laryngeal branch cannot be decided, as the sensitiveness of the larynx could not be tested This injury led to the complete paralysis of the right vocal cord and half of the palate and to the quickening of the pulse Whether the accessory nerve, injury of which gave rise to the paralysis of the sterno-mastoid and trapezius, was struck near its exit from the skull or only behind the sterno-mastoid in the neck where the bullet was later extracted must remain undecided Possibly the glosso pharyngeal nerve was also damaged, but with regard to this nothing more could be ascertained on account of the closure of the mouth preventing the necessary investigation Finally, the hypoglossal nerve was affected. The unilateral paralysis of the tongue had the result that at first the patient's speech was scarcely intelligible This difficulty gradually passed away with exercise, although the hemiplegia of the tongue and also of the larynx and palate continued, and are probably irreparable Suture of the accessory nerve might perhaps overcome the paralysis of the shoulder if carried out soon and one succeeded in finding the divided nerve ends, however we do not know where they should be looked for, high up near the trunk or more peripherally behind the sterno-mastoid

The lesson drawn by the author from the three cases is that the wounded men, although at the beginning they showed definite signs of injury of the larynx, were not investigated in the larynx either in the field hospital or later in the hospitals far behind the scene of action, that it was only when they reached the university town where for some years the official surgeons in the hospital for the reserves had been accustomed to carry out the necessary special examination of their patients that laryngoscopic examination was made, in one case 13, in another 26, and in the third 55 days after the injury, and that numerous important and interesting wounds of the larynx will escape observation and treatment, as military surgical statistics show, if laryngologists do not systematically search them out in the hospitals

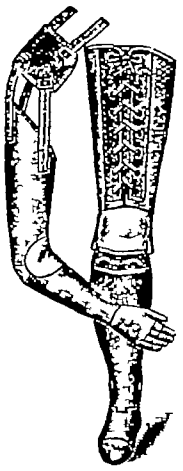
Another case, for which we are also indebted to Dr Dundas Grant is taken from an article by Professor Denker (Halle) official oto laryngological surgeon to the Fourth Army Corps on Gunshot Injuries of the Upper Air Passages (*Arch f Ohr-, Nas, u Kehlkopfheilk*, February 1915) The case is of interest in itself and because it concerns an English officer

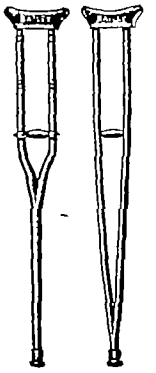
The patient was an English officer wounded in the head by a rifle bullet at Etreux on August 27th He was taken into a reserve hospital at that place, and there tracheotomy was carried out. Then he was handed over to the reserve hospital in T in the following condition. The patient was absolutely voiceless wearing a tracheal cannula which very soon got blocked up with blood and serum On laryngoscopy the vocal cords were not visible as the voice could not be produced. A soft gum-elastic catheter could not be passed upwards from the tracheotomy opening The margins of the wound were little irritated and breathing through the cannula when clean was free and unrestricted. Respiration through the mouth was quite impossible The general condition was good The treatment at T consisted in renewing and cleaning the cannula. An attempt was, however made to close the cannula in part by means of a cork with a notch in it. The patient was sent to Halle for special treatment on Oct. 22nd. On Oct. 23rd it was found that besides the wounds in the neck the patient had been also shot in the arm. In the region of the larynx there was found at the height of the cricoid cartilage in the middle line and 3 cm. further to the left reactionless cicatrices each of the size of a pfennig Below the cricoid was the opening in the trachea in which there was a cannula without an inner tube. On examination of the larynx there was seen extreme redness of the epiglottis, the margin of which was flexed backwards. The vocal cords were scarcely to be recognised the right one seemed especially swollen and red The patient was at first treated with inhalations of M.'s salt, but in the course of the first day he complained suddenly of difficulty in breathing The old cannula was then taken out and a new one with an inner tube put in its place.

On Oct. 24th under local anæsthesia of the neck and larynx, as also of the tracheal fistula, an attempt was made to carry out direct examination with the help of a tracheoscopy tube This however brought on severe cyanosis and dyspnœa, which made it necessary to reintroduce the cannula. For some time little change took place in the larynx Respiration through the larynx with a fenestrated cannula could only be carried out for one breath with the greatest effort and with loud cyanotic stridor Roentgen photography of the larynx with a soft tube (in fencer's attitude) was taken with an exposure of eight seconds and it showed distinct changes in the lower parts of the larynx. When the picture taken is compared with a photograph of a normal larynx it can be recognised that in the lower part of the larynx and exactly in the region of the cricoid cartilage there is a difference perceptible, which shows that the cricoid cartilage at this place has been broken up by the shot, while in the normal larynx the arch of the cricoid can be distinctly outlined and clearly differentiated through the bright part of the ligamentum conicum from the lower margin of the thyroid this part is completely wanting in the wounded larynx The plate of the cricoid appears to be preserved and marked off in front by an irregular line. On the attempt to find a way from the tracheal fistula upwards into the larynx only a very fine rounded probe could be passed Taking together these observations along with the Roentgen pictures it seemed clear that as the result of the wound there was a very high degree of stenosis of the subglottic space or it might be of the upper part of the trachea. As it seemed out of the question to make the larynx pervious by dilatation from the mouth, it was decided to carry out a laryngo-fissure and to excise the cicatricial tissue which had already been recognised and then to endeavour to open the tube of the larynx by means of Thost's or Brügemann's bolt cannulas Before this was carried out the growth like thickenings which had formed in and below the tracheal cannula and the lateral walls of the trachea were punched away with a conchotome under cocaine and adrenalin anæsthesia. On Nov 20th under scopolamine and pantopon narcosis and local infiltration anæsthesia, along with cocainisation of the larynx the proposed operation was carried out The incision through the skin and soft parts beginning in the middle line above the upper margin of the thyroid cartilage cutting down to the cartilaginous substance, was extended to the tracheal opening By a puncture below the middle of the lower margin of the thyroid cartilage the subglottic space was opened and the crico-thyroid artery divided and ligatured From the subglottic space a bougie was passed from above downwards into the trachea. The soft parts lying on the bougie were then cut through with the knife. These consisted of a firm connective and cicatricial tissue in which here and there were small particles of cartilage. In order to keep the margins of the wound better apart the thyroid cartilage was cut in the middle line from below upwards for about 1 cm. with the scissors up to about the anterior commissure of the vocal cords The tissue was excised with a conchotome knife and scissors until a lumen of about 1 cm in diameter was produced. By probing from above it was ascertained that the way to the larynx was quite free Thereupon a cylindrical firmly compressed tampon of iodoform gauze of the thickness of the little finger was inserted and its upper part pushed up to the height of the glottis Then the whole of the outer wound was united by stitches and a tracheal cannula introduced The patient complained of very little pain during the operation During the few following days the pain was, however more considerable, and mucous secretion stained with blood was coughed out in considerable quantity On Nov 24th the stitches were removed and some purulent secretion evacuated from a stitch After the removal of the iodoform gauze tampon Thost's bolt No 5 with the corresponding cannula, was introduced The patient was free from fever and complained only of pressure pain. Two days later the tampon and cannula were removed and were replaced by cannula and bolt No 7 There was no discharge from the stitch On Dec 1st bolt No. 8 was introduced without any great difficulty and the operation wound had completely healed. During the next few days the patient complained only of a slight feeling of pressure in the region of the larynx. On Dec. 9th bolt No 9 was introduced the patient felt well on the whole, and had no special discomfort in the neck.

Professor Denker comments As regards the prognosis in this case there seems every prospect that with sufficiently long-continued dilatation it will be possible to again establish respiration through the larynx, but it is scarcely to be expected that the vocal function can be restored From the nature of the wound it would appear that on both sides the lateral crico-arytenoid as well as the crico thyroid muscle had been considerably damaged and their functions quite destroyed There is further a possibility that the recurrent nerve even if not damaged, has been probably contused or dragged It is, therefore extremely doubtful whether a loud voice could every be restored though it appears according to observations made after complete extirpation of the vocal cords and removal of parts of the larynx still somewhat possible that the patient may later acquire a voice which, though by no means normal, may yet be intelligible

ARTIFICIAL LIMBS &c.

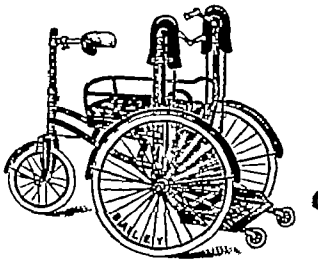




Booklet Post Free.

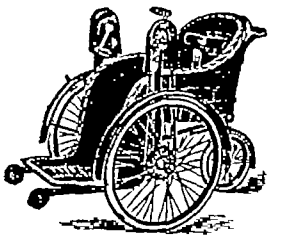
W. H. BAILEY & SON,
38, Oxford St, London, W

INVALID CARRIAGES & CHAIRS
FOR WOUNDED SOLDIERS



No F509

No F509 Hand propelled Invalid Chair Seat with nickel plated rail mounted on spiral springs best Rexine covered Cushion, stuffed hair The Steering is effected by the back support, weldless steel frame, enamelled colour as desired ball bearings throughout, and heavy roadster pneumatic tyres.



No F506

No F506 Hand propelled Invalid Carriage best wicker body The Steering is effected by leaning to right or left. Best pneumatic tyres and ball bearings throughout usual parts nickel plated, and thoroughly well finished

W. H. BAILEY & SON,
38, Oxford St, London, W.

A Guarantee!

Cadbury's Cocoa

is absolutely pure and prepared only from the finest selected cocoa

(*Cadbury Bournville.*)

GALE'S

COMPOUND SYRUP OF THE GLYCEROPHOSPHATES
with
PURIFIED EXTRACT OF OX-BONE MARROW

PALATABLE, STABLE, EFFICACIOUS

An elegant combination manufactured from specially selected and purified materials only It has been found a most useful preparation for fortifying the constitution against infection, and has given gratifying results in the various forms of Anæmia, Debility, &c

DOSE One teaspoonful.

ELIXIR ZYMETOS CO.
GALE'S.

A very palatable combination of enzymes, extremely useful in assisting the digestion of weakened constitutions, and aiding the nutrition of patients convalescent from long and severe illnesses.

DOSE Half to two teaspoonfuls well diluted after meals.

Price List and Pill Catalogue on application

GALE & COMPY., LTD.,
WHOLESALE CHEMISTS AND DRUGGISTS,
(*Established 1786*)
15, BOUVERIE ST, FLEET ST, LONDON, E C
Telegraphic Address: 'DREADNOUGHT, LONDON"
Telephone: 898 HOLBORN

THE SALVARSAN & NEOSALVARSAN

Effective Substitutes.

GALYL

GALYL is Tetraoxydiphosphotetraaminodiarsenobenzene and was discovered by Dr. MOUNEYRAT

It is found in the form of a pale yellow powder, liable to change when exposed to the air

GALYL is as effective as SALVARSAN or NEOSALVARSAN on Spirochætes and Trypanosomes, more rapid in action, and free from the neurotropic and congestive action of these preparations

For INTRAVENOUS INJECTIONS —

(1) DILUTE —GALYL is supplied in neutral glass ampoules containing the necessary dose of Sodium Carbonate Sterile distilled water only being used for the dissolution

(2) CONCENTRATED —A special outfit containing one dose GALYL, one ampoule sterilised solution, and one small filter is supplied

DOSES 0 20—0 25—0 30—0 35—0 40

For INTRAMUSCULAR INJECTIONS GALYL is supplied in oily emulsion

DOSES 0 20—0 30—0 40

HECTINE

HECTINE is Sodii Benzo sulpho-p amino phenyl arsonas

HECTINE consists of colourless needles, very soluble in water, containing approximately 21 per cent of arsenic

The preparation is put up in sterile ampoules for INTRAMUSCULAR INJECTIONS —

AMPOULES A containing 10 cg in 1 c c
AMPOULES B „ 20 cg in 1 c c

PILLS (in Phials of 24) 10 cg

Ref THE LANCET 28/6/15—
Severe cases of intractable syphilis treated satisfactorily with Hectine "

HECTARGYRE

Mercurial salt of HECTINE, a combined arsenico mercurial treatment of Syphilis, especially recommended after a course of Galyl

The preparation is put up in sterile ampoules for INTRAMUSCULAR INJECTIONS —

AMPOULES A containing
Hectine 10 cg in 1 c c
Hg 1 cg

AMPOULES B containing
Hectine 20 cg in 1 c c
Hg 1½ cg

PILLS containing
Hectine 10 cg
Protoiod of Hg 1 cg
Opium Extract 1 cg

IN PHIALS OF 24 PILLS.

CUPRASE

CUPRASE is a colloidal copper hydroxide which is obtained chemically by the reduction of salts of copper in the presence of albumosic acid

THE MEDICAL TREATMENT OF CANCER.

Revue Moderne de Medecine et de Chirurgie

As a result of over ten years' research work on Cancer Dr Gaube du Gers produced a new Colloidal Copper Hydroxide which has given remarkable results in *arresting the progress of the disease*, with loss of pain, and great improvement in the general condition of the patient Locally, these results are manifested by a transformation of the lesions leading to their cicatrisation, in a greater or less period, to the diminution in their size, and finally to the disappearance of the diseased glands Dr Gaube du Gers Cuprase is employed in subcutaneous injections made *very slowly* in the gluteal region, with a needle of about 0 03 cm at the rate of an ampoule every four days which should be continued in the same manner as long as necessary These punctures are not generally painful and do not produce any local reaction Cuprase *is not toxic*

Extract from Proceedings of the Royal Society of Medicine, February, 1913 —

Dr GEORGE HERSCHELL

There are two kinds of colloid copper The electrically prepared colloid which is manufactured by passing an electric arc through copper plates immersed in water and the chemical colloid which results from the slow reduction of copper in the presence of albumosic acid Theoretically, the electric colloid should prove most efficacious, as the particles of copper are reduced to the finest state of subdivision Clinically however, the chemical colloid appears to give the best results In the following cases chemically prepared colloid was used Experimentally, it has been proved (1) That particles of colloid copper can be demonstrated in the granulations of cancerous growths after two or three injections of the colloid, and clinically (2) There is invariably great relief from pain, (3) Appetite and strength return and the patient puts on flesh, (4) There is in many cases a diminution in the size of the tumour, (5) The injections are absolutely non toxic, although in many cases an inflammatory reaction is manifested in the cancerous growths

As regards my own personal experience in the use of this method of treatment in addition to my own cases I have had an opportunity of observing the effects in the practice of some of my medical friends, and in nearly all cases the progress of the disease appeared to be arrested

CUPRASE is put up in boxes containing 8 ampoules of 5 c c each

Further Literature on application to Sole Agents for the British Empire—

The ANGLO-FRENCH DRUG CO., Ltd., Gamage Buildings, LONDON, E C

(Late M BRESILLON & CO)

Telephone 1311 HOLBORN Telegrams: AMPSALVA LONDON

THE LANCET.

LONDON SATURDAY AUGUST 12 1916

The State Treatment of Venereal Diseases

AT the recent session of the British Medical Association a recommendation was approved by the Representative Meeting that arrangements should be made for confidential registration or certification of the causes of death, this being one of the proposals of the Royal Commission on Venereal Diseases Until such registration and certification can be made fearlessly and candidly by medical men the public will not appreciate the far spreading mischief of venereal diseases, but it is absolutely necessary that on the one hand the feelings of the public should be as far as possible protected, and on the other that medical men should run no risk in discharge of their duty The State intervention in respect of venereal diseases depends for its success mainly on these two factors, whether we are considering prevention or treatment, and a third factor will be the prompt ascertainment of the amount of work that lies before us all, as gauged by the prevalence of pathological conditions The Representative Meeting also endorsed the recommendation of the Royal Commission with regard to the keeping of uniform records in all sickness institutions, and this recommendation veiled an indictment of a great many hospitals, some of them being among our best-managed charities If the statistics tabulated from death registers by the Registrar General cannot be claimed as yet to afford any close measure of the amount of mortality from venereal diseases, still less, unfortunately, do hospital records give absolute information. If the Local Government Board can devise a system for the use of hospitals and Poor law establishments by which accurate statistical information can be obtained as regards the prevalence of these diseases among the persons who receive institutional treatment a great step forward will be taken. For it must be remembered that we are as yet a little in the dark as to the extent of the mischief which is now to be combated by a thorough going alliance between medicine and the public The matter is one upon which the widest differences of opinion have been expressed, for while one man s experience seems to indicate that, speaking here of syphilis alone, the amount of disease has much decreased in the last generation, another, with apparently an equal right to speak, will suggest that there is a general syphilisation of the population We incline to the optimistic view, which is supported by the curves of mortality from syphilis in England and Wales for the last 30 years, but what is required, if only having regard to the colossal sums of money that will have to be spent, is a definite knowledge, as far as possible, of the extent of the evil now In this way when progress is made its amount and its direction can be ascertained, so that expenditure may be open handed in the indicated places, while being properly checked in places where, in the absence of information, it may be embarked upon ill advisedly

Dr J A. MACDONALD, chairman of the Council of the British Medical Association, raised the question which has, we know, occurred to many of our readers—namely, What part the general practitioners of the country were going to have in dealing with venereal diseases? And other speakers at the meeting expressed apprehension lest the public health authorities should take over the whole of the work, laying down rules which the medical profession would have to carry out If this should result from the expression in law of the recommendations of the Royal Commission on Venereal Diseases we are certain that it will be contrary to the wishes of the Commissioners as a body, and contrary also to the inclination of the public Some of the Commissioners, we are sure, regarded it as essential for the satisfactory working of any scheme for the prevention and treatment of venereal diseases that the local medical practitioners should be entrusted with a full share in the organisation set up by the State to be worked out by the medical profession The National Committee for Combating Venereal Diseases would certainly support the claims of the general practitioner in this direction Having regard to one aspect of the matter only, a majority of the more obscure cases will, in the first instance, come before the general practitioner When the patient himself—of course, all that follows holds good for both sexes—knows what his condition is, he may be able to have recourse to any treatment centre that he chooses, his convenience and his privacy being consulted as far as possible—so far, indeed, that a direct invitation to hospital abuse will be given unless methods of careful regulation are adopted But where he is ignorant of his plight he may consult a private practitioner, who having diagnosed the case, will advise as to the next proceeding Now in these cases, as in the cases where institutional treatment is sought at the onset and where the patient is later discharged to complete a cure under a private practitioner, it is necessary that the practitioner should know the whole details of the treatment undergone at the institution It was moved at the Representative Meeting of the British Medical Association that when a patient is discharged from an institution "it is imperative for the continuity of treatment that a report as to his treatment during his attendance at the institution should be kept at the institution, and that a copy should be at the disposal of any medical practitioner who applies for it with the sanction of the patient." This is a most valuable recommendation If continuity of treatment is thus preserved the part played by the general practitioner in stamping out syphilis will be of the first importance, both really and in the eyes of the

public, while all medical men will be placed steadily in possession of the details of therapeutic technique The British Medical Association proposes to make representations immediately to the Local Government Board explaining the issues here involved, and seeking that every local authority, when dealing with the treatment of venereal diseases, shall be compelled through all stages to take effective counsel with the local medical profession

In Western Australia interest in the problems of venereal disease has assumed practical expression in the form of an Act (1915) to amend the Health Act, 1911–12, and continuity of treatment is thus secured for the patient We are indebted to the Commissioner of Public Health of Western Australia for a copy of this Act, and for an account of the steps taken by the Department of Public Health to facilitate its working The system of "anonymous" notification of venereal disease provided by this Act is not a novelty, it has already existed for several years in Sweden, where the information thus obtained has given valuable data as to the prevalence and distribution of venereal disease In Western Australia compulsory notification is now followed up by a form of compulsory treatment, the patient may choose his own doctor and go from one doctor to another, but he is bound to remain under medical supervision until he has received a certificate of cure To ensure continuity of treatment, the doctor who takes over a case from a fellow practitioner has to notify him of the transfer, and a special form is provided for these notifications from one practitioner to another The original medical attendant is thus in a position to know whether his patient has gone to another doctor for treatment or has given up treatment under medical supervision When a patient has absented himself from treatment for a period of six weeks the Commissioner of Public Health is notified, and under certain conditions the patient may have to undergo detention, compulsory examination, and treatment The Act also provides free examinations, including Wassermann's reaction From the principal features of the Act it is evident that it encroaches considerably on the freedom of the individual, as formerly understood, but this loss of personal liberty will be compensated for by an appreciable reduction of venereal disease The Act bristles with penalties, and from the time a patient goes to his first doctor for advice to the time that a certificate of cure is issued, he has to run the gauntlet of potential fines and imprisonment In many, perhaps most, cases the patient may be quite satisfied to be shepherded in this patriarchal fashion, but there is a risk lest a certain proportion may so dread this compulsory pilgrimage to health that they will refuse to seek medical help, or seek it at a late stage of the disease This is a risk which it is absolutely necessary should be avoided in the working of the new legislation in this country, and avoided it will be in the most satisfactory fashion if the principle of coöperation between the State and the general practitioner is kept steadily in sight

Bone Grafts and Ununited Fractures

A SPECIAL meeting of the Surgical Section of the Royal Society of Medicine was devoted recently to the subject of bone grafting For many years the problem of how best to deal with ununited fractures has engaged the attention of surgeons, and the attempted solutions have been many, but it has been left to our own day to devise measures on which we can rely to produce results ensuring the life of the patient and the utility of his limb The circumstances of the war will put such a claim to great trial, but, none the less, it can fairly be made When we look into the methods which have been in the past employed we find that for centuries a technique—any technique—not requiring a breach of the skin was preferred, indeed, surgical interference was hardly seen at all, the wholesome fear of septic infection deterring most surgeons from undertaking operations on bones At one time salts of lime and magnesia were credited, when administered internally in large doses, with great power in hastening the union of fractures, but the evidence in favour of this view was by no means strong, and to day we hear little about it When the surgeon ventured on local treatment he preferred not to pierce the skin Rubbing the ends of the bones forcibly together was tried at some schools, THOMAS, of Liverpool employed beating the site of the fracture with a copper mallet, the skin being protected by leather, and the results in many cases were not at all bad BRODIE was in favour of applying a blister to the part, and CLINE used caustic potash over the surface corresponding to the fracture The next advance in importance was the attempt so to irritate the structures between the ends of the bone as to excite a lively inflammation and thus to lead to the formation of new bone Stimulating injections were employed, such as silver nitrate and tincture of iodine, and some successful results were reported Then acupuncture was thought of by MILLER, of Edinburgh, a cataract needle or a long and narrow knife blade was passed in between the ends of the bone and the surfaces were scarified so as to freshen them Next AZAM and LENTE combined the use of electricity with the employment of needles, by sending a current of electricity through the needles after they had been introduced In many cases each of these methods gave successful results, though in some of those in which electricity was used much suppuration was present PHYSICK introduced the use of the seton in the treatment of ununited fracture a silk ribbon being passed between the ends of the bones, according to others it sufficed if the seton were placed close to the ends of the fragments PHYSICK advised that the seton should be left in place for several months but less time than this usually sufficed The danger was by no means small good union followed in many of the cases, but death sometimes occurred SOMME, of Antwerp employed a wire loop in place of the ribbon or thread, and claimed to have obtained satisfactory union, but in so far

as all these devices depended on the amount of inflammation set up, it is probable that the less septic wire would be a less efficacious instrument

Such were the early designs for dealing with the mortifying situation of an ununited fracture So far all the attempts made had dealt with the material between the ends of the bone, and nothing had been done to the bone itself. Next we may put operations aiming at irritating the bone, so as to make it take on a bone forming action. Arabian surgeons, many years ago, are said to have laid open the site of the bad union and to have dissected off the fibrous tissue intervening between the broken ends, if so, WHITE, of Manchester, was not, strictly speaking, a pioneer, when, in 1760, he cut down on the ends of the ununited bones, sawed them off, and having thus removed all the intervening fibrous tissue, freshened the ends so as to start an active bone formation. Later HOREAU in 1805 added to WHITE s operation the drilling of the two fragments and their fixation by a wire Others applied caustics to the broken ends These open operations, however, met with little favour, for they were accompanied by the profuse suppuration which followed at that time compound fractures, and not only was necrosis of the bony ends liable to occur, but the septic complications were not rarely fatal, while even in successful cases recovery was very slow indeed Open operations were little used until the introduction of antiseptic surgery permitted their employment by removing the danger of sequelæ Attention was next devoted to subcutaneous operations on the bone The ends of the bone were drilled with an awl, and in order to cause more irritation DIFFENBACH drilled the bones close to the fracture and drove into the holes conical ivory pegs with a mallet, these pegs were not intended to fasten the fragments together, but merely to stimulate the bone to the formation of more ossification The pegs were generally removed after a few weeks when they had become loosened by the absorption of the surrounding bone The method was useful but by no means free from danger, for death sometimes followed its employment In 1854 BICKERSTETH modified the method by drilling through both fragments, so that the pegs passed from one to the other and thus held the pieces together DETMOLD simplified the operation by drilling through both fragments, leaving the drill *in situ* until the union was well advanced Little further advance can be recorded until the advent of Listerism Surgeons occasionally laid bare the ends of the bone and wired them together, but the sepsis which followed was usually so profuse that the operation was only attempted in cases in which all milder measures had failed With the almost complete certainty of the exclusion of septic organisms afforded by antiseptic surgery, the surgeon was in a very much better condition to attack ununited fractures LISTER himself led the way in wiring recent fractures of the patella, and the same method was applied to ununited fractures The results were on the whole, sufficient not only to justify the practice, but to show that a trustworthy method of treatment of ununited fractures had been found Yet the new method had some disadvantages The process of wiring was not always easy, and a number of cases occurred in which it was quite impossible to retain the fragments in position by wires Various modifications or mechanical dodges were tried Tubes of metal or bone were slipped over the ends of the fragments, and in some cases were efficient Bone or metal plugs were placed within the medullary cavity and occasionally sufficed to produce the required firm union, but the practical difficulties in the employment of all these methods were great That the mischief of the ununited fracture could be remedied under the advantages of asepsis was clear, but it was not so clear what was the best procedure to be adopted in different cases The credit of placing the treatment of ununited fractures on a sound basis must be given to SIR ARBUTHNOT LANE He has dealt by his plan of plating not only with ununited fractures, but also with recent fractures where there was difficulty in placing the fragments in good position, displacement of the fragments being the most potent factor in the prevention of bony union. By the use of the plates which he devised, and by the insistence on the details of an elaborate technique, he and his followers have attained to a very high degree of success Though there is still some measure of controversy as to the cases of recent fracture which should be submitted to these operations, there is a wide agreement that most of the results obtained can hardly be surpassed Both before and since the introduction of SIR ARBUTHNOT LANE'S procedure other surgeons have invented ways for dealing with fractures by drilling and nailing, and these have given satisfaction in a large number of instances Among the more recent methods may be mentioned that devised by Mr E W HEY GROVES[1], he employs an ingenious method of traction of the fragments so that they can with but little trouble be brought into good position A recent exponent of innovations in the treatment of ununited fractures is Dr FREDERIC ALBEE, of New York, and British surgeons had an excellent opportunity of seeing a cinematographic exhibition of his practice at a lecture given by him at the rooms of the Royal Society of Medicine at a special meeting of the Surgical Section He employs bone grafts, and these, of course, have been used before, with a varying measure of success, owing to their employment in a more or less haphazard way No surgeon before Dr ALBEE has devised the instruments for the task or mastered the details needed to make the operation a success Some of his earlier work has been with bone grafts for the fixation of the spinous processes in caries of the spine, an operation which has accomplished much in the treatment of spinal caries, but the relative value of which is still undecided. He has now proceeded to the treatment of ununited fractures on analogous lines, and his demonstration must have gone far to convince many hitherto

[1] THE LANCET, Feb. 21st 1914 p 517

doubting surgeons as to the real value of his ingenuity By ordinary methods of preparation the bone graft is so damaged that its vitality is much diminished, but with the ingenious instruments of Dr ALBEE the preparation of a bone graft becomes wonderfully easy and a matter of only a few minutes The main point in bone grafting is to have the graft as free from injury as possible, and this Dr ALBEE accomplishes as follows The groove in the broken bone which is to be filled by the graft is cut by the use of two parallel circular saws driven by electricity These form parallel cuts in the broken bone, extending on each side of the fracture as far as is required, and reaching down to the medullary cavity By means of a small circular saw a cross cut is then made at each end of the former cuts, and then the piece of bone can easily be lifted out Similar saw cuts are then made on another bone, preferably the tibia, so that a piece of bone exactly the same size as the other is obtained This can then be placed in the groove of the broken bone, the surgeon can be certain that it will fit, and the graft is cut so quickly that it receives no injury and its vitality is in no way impaired The extensive experience that Dr ALBEE has already had with his method and the success which he has obtained are amply sufficient to require that his procedure should be thoroughly tested

A contemplation of the various means which have been employed for the treatment of ununited fractures excites admiration for the ingenuity of the many devices which have been used from time to time Certain of the older of these have been discarded, some because the danger has surpassed the benefit, some because the results have not come up to the expectations to which they had given rise, and some because better methods have been devised coincident with increased knowledge of physiology and of the causes of inflammation Of the several procedures which are now before the surgeons of the world time will decide which is to be accepted—and the time may be shorter than is generally required for similar decisions, owing to the lamentable amount of material which will be under our hands It may well be that, owing to multifarious experience, some new mode of dealing with these troublesome cases will be brought before us In estimating the relative values of the various methods it must always be borne in mind that a surgical procedure can only be judged by the results obtained by following implicitly the instructions of the author For that reason Dr ALBEE s demonstration before the Surgical Section of the Royal Society of Medicine was of especial value

GAZETTE OF THE 3RD LONDON GENERAL HOSPITAL —The August issue of this journal contains a valedictory note by the Commandant, Colonel H E Bruce Porter who is taking out to the East a 1040 bed hospital with a staff of Territorial medical officers He asks that the confidence and loyalty given to him by his past staff at the 3rd London may be equally accorded to his successor Sir Alfred Pearce Gould The other contents of the journal include the usual letterpress and pictures, mostly humorous The price of the publication which can be obtained at the hospital at Wandsworth is 3d

Annotations.

"Ne quid nimis"

BELGIUM AND THE MEASURES FOR ITS RELIEF

IN order to ascertain at first hand the condition of Belgium under German occupation and the actual fate of the supplies for the relief of the population, to which the American nation has so generously contributed, Mr A J Hemphill, a well known New York banker, has visited Belgium, after securing in Berlin permission to do so His report which has now been published, is, in one respect at any rate, of a satisfactory character He is convinced that, in spite of opposition from a section of German critics of the situation the food contributed for the relief of the Belgian population is, in fact, devoted to that end, and that the home grown food supplies of the country are also being consumed by its citizens This last was made by the Allies a condition of the continued permission of food imports and it had the sanction of the German Chancellor in spite of opposition based upon the shortage of food in Germany itself As to the necessity for the relief given, Mr Hemphill declares without hesitation that the appearance of normal existence which he found prevailing, and which particularly impressed him when he arrived at Brussels, is an appearance only Such manufactures as are still carried on do not affect more than a small section of the people, and the look of apparent well being is only maintained through the pouring in from outside of supplies to the value of £1,200,000 per month, in the distribution of which well dressed men, women, and children claim their share as well as those outwardly needy Mr Hemphill places at 600,000 the number of children in the country entirely dependent upon the open handed liberality of the outside world The supply of milk for them has constituted a serious difficulty, but a system has been started by which peasants keeping cattle have each lent a cow without charge These have been placed in communal herds, that at Antwerp numbering over 400 head The cows are to be returned to their owners in due course, or compensation paid for their loss The report of an independent observer, well qualified to examine the matter from a business like point of view, should do much to satisfy everyone as to the absolute necessity that the relief funds should be maintained and as to the fact that they are not being diverted either directly or in effect, to sustain those for whom they are not intended The gratitude of devastated Belgium and the knowledge that lives have been saved and a good deed well done will be the reward of Mr Hemphill s countrymen and of all who have contributed

THE EFFECTS OF TRI-NITRO-TOLUENE ON WOMEN WORKERS

IT would be surprising if the constant handling of a nitro compound were not without some injurious effect upon the health of a proportion of workers, but as a very careful investigation the results of which we publish in a paper this week shows, the toxic symptoms here and there manifested are not widespread and moreover can with suitable precautions be avoided whil

the majority of cases they yield to treat ent It has been well established that the ances of risk to health involved in the conduct more or less poisonous trades can be minimised the factory hands if they will adopt the pre utionary measures laid down by the Home Office thorities, while this same department is insistent, a rule, on the provision of ventilation and all pliances needed to keep down or remove dust or ses in those industries in which they may arise r Agnes Livingstone Learmonth and Dr Barbara artin Cunningham, women medical officers in the unition factories, point out that in the tri nitro oluene filling sheds the work necessitates intimate andling of the powder, and the more floury or ne the powder the greater the amount of dust in e air of the shop In addition they suspect that volatile product is given off under certain condi ions of temperature and moisture According to the vidence of some workers, the effects of the powder re more felt on night work, and this may be xplained by the fact that ventilation, as a rule, is ess free at night, owing partly to the air being oo cold to allow of opening the windows freely, nd partly to war conditions which necessitate he darkening of factory windows at night The eport is a very valuable one, and is the result f a thorough and painstaking inquiry, while the imple and effective suggestions made as to prophy axis should, if adopted, confer an increased immunity n the workers from the toxic attacks of the owder The injunctions laid down as to the mportance of good and plentiful feeding, of personal cleanliness, of rest, of reduced night working, of protecting the person by overalls and so forth, are sensible and sound It is so often the case that it is the neglect, on the part of the worker, to follow such simple pre cautions which leads to a disturbance of health. They are offered authoritative help, but refuse to help themselves, and the observance of such regula tions can be made with little personal inconvenience and be still consistent with a maximum output of munitions

ACUTE POLIOMYELITIS

REPORTS of increased prevalence of acute polio myelitis come from New York and from Dr Matthew Hay, medical officer of health for the city of Aberdeen The actual number of cases notified does not appear to be large in either case—48 in the former and 39 in the latter, but the number of cases known to have occurred in June and in the first week of July suggests the beginning of an epidemic and that a greater prevalence is likely to occur in July, August, and September, for it is almost a constant feature for the incidence of poliomyelitis to be greatest in the months of July, August, and September In the London area in 1912 the disease reached its greatest prevalence in July in 1913 in September, in 1914 in August, and in 1915 in October It is the early recognition and isolation of the first cases which are of such import ance, for all the clinical and experimental evidence goes to prove that the disease is transmitted through direct contact from acute cases or carriers and not by flies or vermin The difficulty of determining the carrier is very great, for the only test which at present we possess for detecting the virus is the experimental one—viz the injection of the filtered secretion into monkeys Now this method cannot be completely relied on even in the hands of the expert investigator, and it certainly cannot be largely employed, for each operation would necessitate the sacrifice of at least one monkey But though recognition of carrier cases is hard, prevention of the disease is not The secretion from the nasal and buccal cavities is nearly always the source of infection, the virus is easily killed by dilute solution of potassium permanganate (1 in 2000), and in order to prevent infection the nasal and buccal cavities can be frequently washed out with this solution The disinfection of the other excretions of the body and of the bedding and clothes can be carried out in the usual method as applied to any infective case, but it is to the buccal and nasal secretions that the chief attention should be paid It is important to recognise that individuals in contact with the infected may acquire the disease in an abortive or modified form without any paralytic phenomenon, and it is therefore essential that all those in contact with the acute disease should take precautions to disinfect the nasal and buccal secretions From a consideration of the epidemiological feature of the disease there appears to be little doubt that the population of the British Islands generally, and adults especially, are immune or have acquired an immunity to this disease This immunity would seem to have been acquired by the constant presence of the disease in an endemic form, for when it arose as it did in the island of Nauru in the South Pacific it attacked the native adults in a severe form If Dr Hay, by taking precautions in the early cases with which he has met, can prevent the spread of the epidemic, and at the end of the year it will be possible to judge, he will deserve the most grateful thanks of the community, for he will have saved numerous children from the disastrous consequences of the disease

EPIDEMICS RESULTING FROM WARS [1]

WE have received a volume with this title issued by the directors of the Division of Economics and History of the Carnegie Endowment for Inter national Peace, an organisation intended to "promote a thorough and scientific investigation of the causes and results of war" This mono graph, from the pen of Dr Friedrich Prinzing, on epidemics resulting from wars is designed to bring into light an aspect of international conflict that has never been adequately appreciated An exa mination of the facts here presented will indicate that until comparatively recent times the most serious human cost of war has been not losses in the field, nor even losses from disease in the armies, but the losses from epidemics disseminated among the civil population It was the war epidemics and their sequelæ, rather than direct military losses that accounted for the deep prostration of Germany after the Thirty Years' War Such epidemics were also the gravest consequence of the Napoleonic wars In an introductory note John Bates Clark, one of the directors, expresses the opinion that "when the medical history of the present war comes to be written it will be found that the aggregate losses from sporadic outbreaks of war epidemics have been very considerable A war sufficiently protracted to lead to universal impoverishment and a break down of medical organisation would be attended,

[1] Epidemics Resulting from Wars Clarendon Press Oxford, 1916 pp 346 price 7s 6d net

as in earlier times, by a whole series of devastating epidemics" And he instances, in support of this belief, the small pox epidemic following the Franco German War In 1870 the means of coping with small pox were quite advanced This fact did not save Europe from a widespread epidemic, entailing human losses exceeding in gravity the losses in the field The history of this epidemic is described at considerable length in the book, in Germany alone there were over 171,000 deaths in the years 1871–2 out of a population of about 41 millions Epidemics also occurred in Switzerland, Belgium, Holland, Austria, and Italy, while in Great Britain and Ireland the mortality due to it was 10 1 and 8 3 per 10,000 inhabitants during the same two years For Germany this disastrous epidemic had one good result, it led to the passing of the Imperial Vaccination Law in 1874 which rendered vaccination compulsory The beneficial result of the passing of this law was clearly demonstrated in the course of the following decades Notwithstanding the fact that Germany is almost entirely surrounded by States to which epidemics of small pox, in consequence of insufficient vaccination, are of frequent occurrence, since the passing of this law the disease has not once made its appearance on German soil in the form of a wide spread epidemic As the author justly remarks, the measures which are so effective in the case of other diseases—isolation of the patients and of suspected persons living in the vicinity, disinfection of the room and effects which have been used by patients—in an insufficiently vaccinated community do not have the desired rapid success, since the contagion of small pox clings with extraordinary tenacity to clothes and articles of general use The volume contains interesting details of epidemics resulting from wars, from the time before the Thirty Years' War to the Franco German War of 1870, and also from those subsequent to it, the Russo Turkish, Boer, Russo-Japanese, and the Balkan In conclusion, the author recommends that all preparations designed to prevent the outbreak and dissemination of infectious diseases must be made in times of peace For the military authorities, who can scarcely perform all the duties that the beginning of a war imposes upon them, it will facilitate matters greatly if in future campaigns the Red Cross devotes its attention, not only to the care of the wounded, but also, on a larger scale than it has heretofore, to the prevention of the outbreak and dissemination of war pestilences

THE ETIOLOGY OF EPIDEMIC CEREBRO-SPINAL MENINGITIS

THE causal micro organism of epidemic cerebro spinal meningitis has been the object of much research and discussion Several organisms have been isolated and claimed as the specific microbe of the disease Of these the most commonly found is the diplococcus intracellularis meningitidis of Weichselbaum, generally known as the meningococcus, and amongst others may be mentioned the pneumococcus, an encapsulated streptococcus, and an organism similar to the diplococcus crassus There is no difficulty in admitting that sporadic cases may be caused sometimes by the pneumococcus, sometimes by the meningococcus But as regards the epidemic form it seems very unlikely that such a definite disease as epidemic cerebro spinal meningitis could be caused by more than one organism, and the bulk of observers are of the opinion that the meningococcus is the germ responsible In another column we publish a paper by Mr M F H Gamble, medical superintendent, Hospital for Insane, Kew, Victoria Australia, maintaining that the organism causing the disease is "practically identical with the gonococcus, a mutant form perhaps" Though fully aware that this suggestion is contrary to the opinion held by other observers we have decided to publish it, as Mr Gamble expresses his views in very decided terms Moreover, this is not the first time that such a suggestion has been made, but the arguments raised against it have been weighty Although morphologically the meningococcus and gonococcus cannot be distinguished, yet their other properties are different The meningococcus is pathogenic for mice, whilst the gonococcus is not Their cultural characteristics are different, as are the agglutination and complement fixation reactions Further, some interesting researches reveal that the inoculation of the second generation of the meningococcus inserted into the urethra of five investigators failed in every case to produce gonorrhœa, while even the twentieth generation of the gonococcus produced the disease Mr Gamble, however, goes farther than this and states that the disease is almost certainly conveyed from one person to another by lice and by no other channel We are not aware that this channel of infection has been previously suggested and it cannot be accepted without further proof We do not think that Mr Gamble's arguments carry conviction, and a very obvious question arises If he is correct in his theories, how is it that, although in this country gonorrhœa has always been very common, yet cerebro spinal meningitis is comparatively rarely met with? We are afraid that it cannot be answered by saying that lice are so rare!

ERYTHEMA NODOSUM IN MILIARY TUBERCULOSIS

IN a number of the *Svenska Lakarsällskapets Handlingar* (Stockholm, 1916, xlii, p 2) dedicated to Professor E Holmgren, the Swedish histologist, on his fiftieth birthday, G Brun and J Tillgren record an unusual case of generalised tuberculosis The patient, a working woman of 43, developed cough and general debility in December, 1914 In the following January she had swelling and tenderness in the joints of the hands and elbows, identified by the authors as the "tuberculous rheumatism" of French medical writers Soon the knees and feet were similarly attacked, first on one side of the body and then on the other, and the patient took to her bed for a month, suffering much pain during the first week While convalescing from this attack she had pain in the joints of the shoulders and jaws and vertigo headache During all this period she exhibited a skin eruption from time to time, consisting of small spots of the size of pins heads on the arms legs, and back, lasting a few days and free from itching and tenderness She came into hospital in 1915, apparently in August, having a fortnight previously had a typical outbreak of erythema nodosum on the extensor aspects of the arms and legs, the nodosities being hard, tender, and the size of plums On her admission they were still present, though smaller than they had been during the first week of their presence and no longer tender The patient was found to be well nourished and muscular, though she had

wasted considerably during the previous six months The lungs showed nothing abnormal on physical examination, there was a systolic murmur over the apex of the heart, which seemed otherwise normal The abdomen was distended but without localised tenderness, the liver could not be felt, the spleen was readily palpable, the urine did not give Ehrlich's diazo reaction and was free from albumin and reducing bodies The blood count showed 3 1 million red cells and 3300 white cells per c.mm. and 55 per cent of hæmoglobin Wassermann s reaction was negative, the fundus oculi was normal Examination with the X rays showed dense shadows at the roots of the lungs out no other changes in the lung tissue The patient was in hospital two months before she died, with irregular low fever, loss of appetite and strength, and latterly increasing abdominal distension. The leucopenia became more obvious the number of white cells falling to 1100, 1200, and 1300 per c.mm, with 45 per cent of mononuclear cells The diazo reaction and Weiss's urochromogen reaction appeared in the urine, cultures of the blood and the urine were made, but proved sterile At the autopsy the spleen was found to be 10 inches in length and to weigh 2¾ lb It was soft and contained numerous tuberculous abscesses and areas up to the size of walnuts, the smaller grey in colour, the larger yellow and surrounded with zones of red. The lower lobes of both lungs each contained a calcified tuberculous area of the size of a bean, these the authors assume to have been the primary foci of infection, with spread to secondarily involved lymphatic glands at the roots of both lungs, one gland being calcified on the right side Tuberculous glands were also found in the mesentery, portal fissure, abdomen and neck, and round the aorta. A guinea-pig injected with the contents of one of these glands had developed generalised tuberculosis when it was killed six weeks later A second guinea pig was inoculated in the flank with a piece of pigmented skin from one of the areas of erythema nodosum. Four months later the animal showed no signs of tuberculosis Microscopic sections of the skin showed no obvious changes The brain, liver, kidneys, pancreas, suprarenal glands, and bone marrow were normal in appearance In their discussion of the case the authors describe the erythema nodosum as of the "ominous" form, and express regret both that it was not submitted to microscopical and bacteriological examination at an earlier date and that no complete tuberculin investigations were made No general reaction followed a tuberculin injection administered at a time when the urine gave no diazo reaction. They remark that the case is not unlike those of tabes mesaraica in children, and resembles the glandular tuberculosis of apes described by Koch. They are continuing the examination of the tubercle bacilli isolated from the patient s lymph glands, which may prove to be of the bovine type

---

WE regret to announce the death of Mr Morton Alfred Smale, consulting surgeon, Royal Dental Hospital, and consulting dental surgeon to St Mary s Hospital

---

ON August 3rd His Majesty the King visited Cambridge, and after inspecting various military units at the colleges made a long stay at the 1st Eastern General Hospital, where he showed great interest both in the patients and in the arrangements of the hospital

THE SHIAH PILGRIMAGE AND THE SANITARY DEFENCES OF MESOPOTAMIA AND THE TURCO-PERSIAN FRONTIER

BY F G CLEMOW, M D EDIN, C M G

BRITISH DELEGATE TO THE INTERNATIONAL BOARD OF HEALTH AND PHYSICIAN TO H.M. EMBASSY CONSTANTINOPLE.

I —INTRODUCTORY

IT is the merest platitude to say that the great war has wholly altered the relative values of all subjects of human interest The matters dealt with in the present articles—which aim at summarising the labours of an International Commission which, in the winter of 1913-14, inquired into the sanitary defences of Mesopotamia and the Turco-Persian frontier—were at that time of very real interest and practical importance At the present time such interest as they can claim must be very largely, but not wholly of an academic character For on the one hand, the regions of the world with which these papers deal have been swept by the flames of war, the Shiah pilgrimage, with which they are to a large extent concerned, if it continues to take place at all, must have sunk to insignificant proportions, and, briefly, many of the conditions they attempt to describe must, for a time at least have ceased to exist. But, on the other hand the regions in question are among the principal of the secondary theatres of the world war, and so claim a very special interest at this moment Moreover, the cessation of the conditions herein described must, in the nature of things, be temporary only The great lines of communication by the rivers of Mesopotamia or the roads across the Persian frontier will sooner or later become once more as they have been from time immemorial in the past, busy routes of pilgrimage and commerce, and their defences against the importation of epidemic diseases will require the careful consideration of the governing authorities to whatever Power these countries may belong after the war The Shiah pilgrimage—far too essential a feature of this branch of Islam to cease altogether—will be more active than ever when peace reopens these regions again. And so a statement of the problems which their sanitary defences present and of the methods by which it was proposed just before the outbreak of the war to solve them, may be usefully made at the present time, though no attempt at applying the practical conclusions to which it leads can be made until the war is at an end.

The information upon which the present study is based was obtained under the following circumstances In the winter of 1913-14 the Constantinople Board of Health despatched to the regions in question a special Commission, charged with the study of their existing sanitary defences and the means of reinforcing them. The Commission was composed of the British, Russian, German and Persian delegates and a Turkish member It left Constantinople in November 1913 by a special steamer, which also conveyed several members of the Turco-Persian Frontier Delimitation Commission, whose labours in delimiting the exact line of that frontier synchronised with those of the Sanitary Commission Basra, Bagdad, the Shiah holy cities of Kerbela, Nejef, and Kiazmein Khanikin on the Persian frontier, and many other places were visited and the Commission returned to Constantinople in the spring of 1914 Its report prepared by me as 'rapporteur' of the Commission, was presented to the Board of Health in June, and was at once ordered to be printed. The printing was however still uncompleted when the rupture between Turkey and the Entente Powers led to the hurried exodus from Constantinople of most of the subjects of those Powers, and only the manuscript of the report could be saved.

It may be mentioned here that the idea of sending such a Commission was no new one. It seems to have been first broached in the International Sanitary Conference of Constantinople in 1866 by the Persian delegate, at the thirty sixth sitting of that Conference It was again put forward in the Mixed Commission for Revision of the Ottoman Sanitary Tariff in 1882. But though the proposal to send such a mission was definitely carried by that body no practical effect was given to the decision It remained for a later Mixed Commission "(the nature of which will shortly be explained) to renew the proposal, and to renew it

successfully, and as a result two Commissions were sent The first, consisting of the Russian, French, and Persian delegates, visited the northern third of the Turco-Persian frontier in July, 1911, and issued a brief report on its return to Constantinople, the second, whose labours form the subject of the present articles, was charged with a study of the sanitary defences of the southern two-thirds of the frontier, of Basra and the Shatt-ul Arab river, and of the dangers to public health offered by the movement of pilgrims and dead bodies to the Shiah holy cities, and the means of meeting those dangers

In the course of these articles it will be shown that the only two lazarets or quarantine stations in these regions—those of Basra near the head of the Persian Gulf and of Khanikin on the frontier—were wholly inefficient and had been allowed to fall into a lamentable condition of dis repair Their thorough reorganisation was among the principal recommendations of the Commission That this condition had been brought about was mainly due to the peculiar circumstances of the financial relations between the Board of Health and the Turkish Government This is not the place to describe those relations in full, but briefly it may be said that while the Board of Health was responsible for the cost of administering all the Turkish lazarets the cost of constructing and repairing the buildings of the lazarets was, under binding international conventions, at the charge of the Turkish Government The latter had, however, evaded its obligations in this matter, and the peculiar position was thus brought about that, while the Board of Health possessed a very large reserve of money invested in various public funds, it was unable to spend any of this in putting the lazarets in repair without infringing the conventions in question It was necessary, therefore, to modify those conventions, and such modification could only be effected by a body known as the Mixed Commission for Revision of the Ottoman Sanitary Tariff This body has met on five occasions since 1869 It was last summoned in 1905, and subsequently to that date the Board of Health despatched a series of Commissions of Inspection to all the lazarets and sanitary stations of the Turkish Empire Those Commissions, of which I have in most instances been a member and "rapporteur," produced reports containing full descriptions of each lazaret and detailed proposals for their thorough reorganisation [1] The mission to Mesopotamia was the last of the series

In 1911 a number of proposals tending to remove the financial deadlock just referred to were made by the author to the Mixed Commission, as representing the power whose shipping contributed a larger proportion than any other of the ordinary income of the Board of Health. With some modifications those proposals were adopted in their entirety The nature of the decisions thus taken need not be described in detail here, it will suffice to state that they included, on the one hand, a reduction of 20 per cent in the sanitary dues on shipping in Turkish ports and, on the other the spending of a sum of £T 280,000 (£252,000 sterling) out of the Board's reserve on the reorganisation of the Turkish lazarets An adequate portion of this sum would have been allotted to the repair of the Basra and Khanikin lazarets and the carrying out of the other proposals put forward by the Commission of Inspection for the Improvement of the Sanitary Defences of Mesopotamia and the Turco-Persian Frontier The outbreak of the war has, of course, completely suspended the execution of those proposals, and it may yet fall to some more efficient Power than Turkey to provide the means of protecting these regions from invasion by epidemic diseases

II.—THE LAZARET OF BASRA.

The small group of dilapidated buildings, partly of sun burnt brick and partly of sticks and matting, which constitutes [2] the Basra lazaret occupies the northern end of the island of Salihieh, near the left shore of the Shatt-ul Arab river The town of Basra itself lies on the western side, some three kilometres from the river bank On this side, however, the suburb of Ashar, a township of considerable size, has grown up and it is here that are situated the custom house the foreign consulates the offices of the principal shipping companies, and other business buildings Basra town and the Ashar suburb are connected by a creek or canal, the Ashar Creek, which opens into the river, and by a rough and primitive road

The lazaret of Basra, if properly reorganised should form an important element in the network of sanitary defences of the Persian Gulf. Those defences were discussed at some length in successive International Conferences notably in those of 1894 (Dresden) 1897 (Venice), 1903 (Paris), and 1911–12 (Paris) The Dresden Convention of 1894 provided for the creation of a large lazaret at Faô, at the mouth of the Shatt-ul Arab river, and of a series of other stations, at Basra and in the ports of both sides of the Persian Gulf Great Britain, however, rejected the section of the Convention containing these proposals The Venice Convention proposed only a lazaret at Basra, and a "sentinel" station to be constructed on some island near the entrance of the Gulf Hormuz or Kishm being suggested as suitable sites. This proposal was repeated in the Paris Convention of 1903, but was accepted by certain countries only under conditions which practically nullified the proposal In the last Convention that of Paris, 1911–12, all these proposals were tacitly dropped, and it was left to the sanitary authorities of the different ports on and near the Gulf to apply, with slight modifications, the measures generally applicable under the Convention in all ports (Art 63)

Meanwhile, and for many years before the last Convention was signed, a number of sanitary stations had been established in the ports of the Gulf and have been efficiently administered by British Indian officials The existence of these stations had, indeed, rendered wholly unnecessary any special clauses in the Conventions for the sanitary defences of the Persian Gulf Their establishment had not, however been effected without difficulty and opposition, and German and Austrian influence had frequently been brought to bear with a view to altering their status and bringing them under some form of international control, but fortunately without success

The Geographical Position of Basra

The Shatt-ul Arab is the river formed by the junction of the Tigris and Euphrates At the angle of junction, some 40 miles (64 kilometres) north [3] of Basra lies the village of Gourna, the traditional site of the Garden of Eden For the curious in these matters it may be mentioned that a tree purporting to be that which played so fatal a part in the fall of man is still pointed out to the traveller It is an ordinary acacia tree, and apparently of no great age.

Some 22 miles (35 kilometres) south of Basra (or Ashar) is the Persian town of Mohammerah, situated at the point where the Karun river flows into the Shatt-ul Arab on its left side The Sheikh of Mohammerah, while nominally under Persian suzerainty is to a very considerable extent an independent ruler The small port of Faô, on the west side of the Shatt-ul Arab close to its mouth is distant 62 miles (100 kilometres) from Ashar The total distance from Ashar to the "bar" or sandbank across the mouth of the river is 84 miles (134 kilometres). This bar is a local feature of considerable importance It can only be crossed at low water by ships of light draft Ships of deeper draught are compelled either to wait—sometimes for several days or even one or two weeks—until a favourable combination of wind and tide deepens the water sufficiently, or to discharge their cargoes into lighters which are then towed up the river to Basra The delays thus caused to shipping will be readily understood

Both sides of the river are very largely covered with extensive date plantations, and the cultivation, gathering and packing of the dates constitute the principal business of the inhabitants of these regions At the time of the date harvest large numbers of persons are collected along the shores of the river temporarily housed in "serifehs," or matting huts under highly insanitary conditions

Innumerable creeks, some wide, some narrow open into the river on both sides, and most of these bear names Along the left shore, for the whole distance between Basra and Mohammerah a series of long narrow islands has been formed, which are separated from the mainland by strips of water of varying width, and it is on one of these that the

[1] The work of some of these Commissions was described by me in articles published in THE LANCET in 1905 and 1903

[2] Though the present tense is used here and throughout these articles it should be understood that all the statements they contain refer to the conditions found before the war in the winter of 1913–14

[3] For the sake of convenience the river is regarded as running from north to south though as a matter of fact its general course is from north west to south-east, and in many parts and notably near Basra its course is rather from west to east than from north to south

lazaret is built It is not surprising, in view of these conditions, that malaria is widely prevalent along the valley of the Shatt-ul-Arab

The water in the river and its tributary creeks falls to its lowest level in the months of August to October In November, when the rains begin, there is a slight rise, but the real and serious rise only begins in the month of March, when the snows in the hills of Kurdistan and Persia begin to melt From March to July the river is at its highest The tidal rise and fall varies between 6 and 9 feet, according to the season of the year In very dry seasons and at very low tides the creeks and strips of water between the islands and the main land may in some places become almost dry The importance of these local conditions in connexion with the military operations now taking place in these regions will be readily understood

FIG 1

Shiah Pilgrims on a Tigris steam boat.

Shipping in the Port of Basra

In ordinary times the British India Company sent every week from Bombay to Basra two steamers known respectively as the "fast mail" and the "slow mail." The former touched at few ports and did the journey in seven days, the latter called at many ports and took 15 days to complete the voyage Several other British companies also served the Gulf and Basra more or less regularly A large Russian steamer left Odessa for Basra every two or three months, and in the last few years the German Hamburg Amerika Company has sent a steamer to Basra about once a month

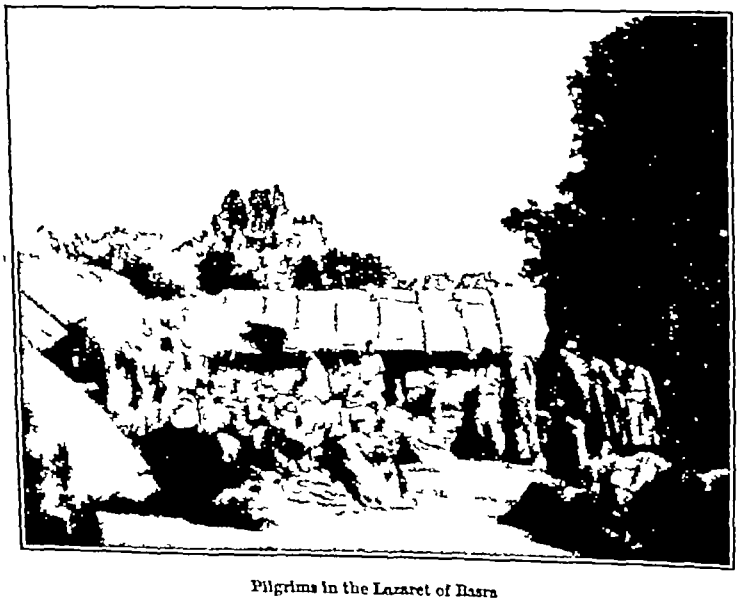
The movement of shipping in the port of Basra has increased steadily of recent years and with the completion of the Bagdad and other railways and the development of irrigation schemes in Mesopotamia the importance of Basra as a shipping centre would inevitably have increased still further

Full tables (omitted here) of the numbers and nationality of the ships visiting Basra in the ten years 1903–13 showed that the overwhelming proportion—over 90 per cent.—of steamers were under the British flag, the yearly average of British ships being 167 4 out of a total average of 185 3 of all nationalities The tables also showed that German ships were first seen at Basra in the year 1906–07, when eight German ships arrived there, this figure has since risen to 13 or 14 each year Of the total amount paid in Basra in sanitary dues during the years in question British shipping contributed 82 6 per cent

The Town of Basra

The population of Basra is reckoned at some 50,000 to 60 000 Like all other towns in these regions its sanitary conditions leave much to be desired. Many of the houses are built of sun burnt or kiln burnt bricks, but many others are "kutcha" constructions, in bad state of repair and much overcrowded The water supply is mainly from the Ashar or other creeks—which receive every kind of surface pollution—or from wells There is no system of drainage and cesspools exist in most of the houses The town is unpaved and the streets are deep in an offensive mud after heavy rains

FIG 2



Pilgrims in the Lazaret of Basra

The Basra Lazaret and the Question of its Transfer Elsewhere

It would serve no useful purpose to describe here in detail the actual lazaret of Basra as it existed two years ago Briefly, it was found to be not only in a shocking state of disrepair but also so entirely inadequate in size and so lacking in everything that an institution of this kind should be that no course was open to the Commission but to propose its demolition and the construction in its place of a larger and properly planned and equipped sanitary station.

A question of primary importance submitted to the Commission was that of the transfer of the lazaret to another site Turkey had frequently proposed, in successive international conferences its removal to Faô, at the mouth of the river, alleging that the present site was too near for safety to the town

of Basra This proposal was successfully combated by the representatives of other Powers, the principal and conclusive objections to Faô being that, firstly, only one bank of the river here is Turkish and, secondly, that it is too far from the port of Basra, and that navigation would be seriously handicapped in consequence

Many other sites had been suggested and their advantages and disadvantages were carefully examined by the Commission Only one need, however, be named here. This was the Island of Shemshumieh, the third out of the four long narrow islands which lie parallel with the left shore of the river between Basra and Mohammerah, and which were referred to above Its supposed advantages had been strenuously advocated but the Commission found the island quite unsuited as the site of a lazaret, for reasons which it would take too much space to develop here It may be mentioned, however, that the actual line of the frontier between Turkey and Persia, as delimited in the winter of 1913–14, descends to the river some distance to the north (or north west) of Shemshumieh, so that here, as at Faô, only one bank of the river is Turkish Moreover the island is the property of the Sheikh of Mohammerah, and this would render its expropriation by Turkey practically an impossibility

While the principal objection put forward against the present site of the lazaret had been that its proximity to Ashar and Basra was a source of danger to those towns, the real reasons for proposing its transfer were probably of another character altogether, having little to do with public health considerations The Commission came to the conclusion that the actual distance of the present site from Ashar, and *a fortiori* from Basra town, was ample to safeguard the latter from any danger of spread of disease from the lazaret The river here has a width of 457 metres, or 1500 feet, the distance of the lazaret from the mouth of the Ashar creek—which is itself 3 kilometres from the town of Basra—is 2 kilometres, or 1¼ miles, and the lazaret is down stream from the suburb of Ashar The Commission therefore proposed to reconstruct the lazaret on the existing site and on a plot of land adjoining Steps were being taken to arrange for the expropriation of this land for the public weal, under the Turkish law of expropriation, when the owner suddenly died and the land became the property of his heirs All further steps were put a stop to by the outbreak of the war

The Future Lazaret of Basra and the Measures to be Applied There

Whatever may be the future political status of these regions, some form of sanitary station will always be necessary in the neighbourhood of Basra, and the site just briefly described is as favourable as any that can be found The measures prescribed in the International Sanitary Convention of 1911–12 should be applied here, as in any other port A much to be desired uniformity will thus be introduced Under former conditions the measures applied at Basra to ships coming from Indian or other Eastern ports were on each occasion imposed by special decision of the Constantinople Board of Health, and were constantly varying Thus of recent years, while ordinary ships—that is to say, not pilgrim ships—were usually not subjected to very onerous measures pilgrim ships suffered from vexatious and usually unnecessary quarantines, and only by bringing persistent pressure to bear has it been possible to obtain a gradual relaxation in their severity After the appearance of plague in India in 1896, ships with Shiah pilgrims on board from Indian ports were absolutely prohibited access to Basra and were repulsed if they attempted to come By a decision, however, taken in March 1901, they were allowed to bring up to five pilgrims per 100 tons net register, but even then they were subjected to 10 full days' quarantine in the lazaret In 1912 the proportion of Shiah pilgrims permitted was raised to 10 per cent and this could be increased to 20 per cent if the ship had on board a doctor, a disinfecting stove, and a pharmacy, and the only measures imposed were a quarantine of the number of days needed to complete five days from the last infected port, disinfection, and application of the rat-destruction circular Ships with a larger percentage of pilgrims than those mentioned were however still to be repulsed, and several troublesome incidents arose in consequence All such troubles will cease with the application of the clauses of the International Convention. To apply those clauses some form of lazaret will, as just stated, be necessary, and the Commission's report contained very detailed proposals accompanied by plans and estimates prepared by a local architect, for such an establishment The estimated cost of the new lazaret was £T 21 000 (about £19,000 sterling) and this sum would have been taken from the £T 280,000, which as already explained, had been voted for the repair of all the Turkish lazarets

It would serve little purpose, even if space permitted, to describe here the proposals for the new lazaret, but mention may be made of two points—the water supply and latrine arrangements—since they are of general interest and throw some light on the local conditions

The water supply is, and must continue to be, obtained from the river Shatt-ul Arab This water is universally drunk by the inhabitants of the district, either in an unfiltered state or after filtration through porous earthenware vessels known as "hubs" The water, however, contains a large amount of suspended matter, mainly mineral, but comprising much organic matter also, and is often semi transparent or quite opaque Some form of purification will therefore always be necessary before distributing such water to persons interned in a sanitary station. This will become doubly necessary when cholera is present in Basra or its neighbourhood It has been stated above that a properly administered lazaret here should offer no danger to its surroundings, but the past history of cholera at Basra has shown that the reverse is not equally true, and that when cholera is epidemic in and near the town the river water may become seriously contaminated with the cholera virus and prove a very real danger to persons in the lazaret The following is a brief summary of three disastrous incidents, in which persons in good health undergoing quarantine in this lazaret were infected in this manner with fatal results

The s s *Kapurthala* arrived from India at Basra on May 27th 1904 There were 147 passengers on board all in good health During their stay in the lazaret 27 contracted cholera, and no less than 18 died

The s s *Kola* arrived at Basra on Oct 27th, 1910 There were 244 passengers on board all well, 24 of these contracted cholera in the lazaret and all, without exception, died

The s s *Dwarka* reached Basra on Oct 4th, 1910 with 99 passengers, all healthy Nine of these contracted cholera in the lazaret, and eight died

In each of these instances the infection was traceable to the drinking of unboiled water from the river at a time when cholera was epidemic in a severe form in the neighbourhood There were other incidents of the kind, but in these three alone some 60 persons, who were interned in a deplorably bad lazaret, with the sole object of preventing a possible introduction of disease by them to Basra, were actually infected themselves by disease from that town, and 50 of them died Since 1911 the water had been boiled before distribution to persons in quarantine and no such lamentable incident as those just described has occurred since

In future arrangements for boiling the water will always be necessary when cholera is present at or near to Basra In ordinary times it will perhaps be sufficient to filter it well The Commission proposed to take the water, not direct from the river but from a well or wells thus allowing a first filtration by the soil, it would then have been pumped into a large settling tank, at ground level and thence to two smaller tanks placed on the top of a "water tower" Finally it would have been passed through a magnetic iron or other form of filter before being distributed to the various parts of the lazaret

For the disposal of excreta it was proposed to have in each "cordon" a group of latrines on the trough system whence the excreta would have passed to a series of septic tanks The effluent from these would have been admitted to the river only when the tide began to ebb and the current to be a descending instead of an ascending one It may be noted that at this point on the river the water has an ascending current during three or four hours only and a descending current (i e, towards the Gulf) during eight or nine hours Should a few germs escape from the tanks into the river in spite of all precautions it was thought that they would offer little danger since they would enter the river on its left bank, far from Ashar and well below it, and they would at once be diluted by the large volume of water in the river at or just after high tide Moreover even in the past when the arrangements for excreta disposal were of the most

primitive and inadequate character, no instance could be traced in which disease had been spread by this means from the lazaret to the inhabitants of Basra or its surroundings As a further precaution it would be desirable to take special measures for the disinfection and separate disposal of the excreta of persons actually suffering from cholera.

Basra as a Channel of Importation of Cholera and Plague

Both diseases have not infrequently been imported to Basra, and thence spread up the valleys of the Tigris and Euphrates as also that of the Karun, and caused epidemics in Mesopotamia Turkish Kurdistan, and Persia. But as a rule these epidemics have shown no great tendency to spread thence to other countries and this route has proved a far less dangerous one for Europe than that by the Red Sea and certain overland routes from the East The history of each disease may be briefly considered separately

In the first pandemic of *cholera* the disease was imported from ports on the Persian Gulf to Basra, and spread thence up the Tigris and Euphrates The great pandemic of 1828–32 did not follow this route. In 1845–46 cholera was epidemic in Persia and in the latter year spread southwards through Mesopotamia from Bagdad to Basra. In 1851 the disease spread in the opposite direction from Basra to Bagdad, it reached Persia in 1852 and was practically endemic in that country until the year 1861 In 1865 cholera was imported to Mesopotamia by two different streams of pilgrims returning from Mecca—the one by the Aleppo and Euphrates route and the other by sea to Basra. From 1866 to 1870 cholera was widely prevalent in many countries including both Persia and Mesopotamia. In the next great pandemic that of 1881–87 these countries seemed to have escaped, but in 1889 the disease was again imported to Basra and spread up the Tigris and Euphrates and later to Persia. In the very severe pandemic of 1892 and subsequent years these regions suffered but little, but in May 1893 the infection appeared at Amara on the Tigris and shortly after spread to Basra, Kut-el-Amara, and Bagdad In 1899 it was freshly imported to Bushire and Basra and caused a high mortality among the date gatherers on the shores of the Shatt-ul Arab In the next great pandemic, that of 1903 and following years, cholera came to Mesopotamia (in 1903) not by sea but by land from Syria spreading down the Euphrates valley and causing severe epidemics at Kerbela, Nejef and other places It remained here and in Turkish Armenia until 1905 In 1904 it was epidemic in Mohammerah and spread into Persia by the Karun valley It again appeared in the Tigris valley in 1910, apparently coming from Persia and spreading southward from Bagdad to Basra. In 1911 it followed a similar course and also spread up the Karun valley

It will be seen from the above short summary that cholera has been imported to Basra nearly as frequently by land (or river) from the north as by sea. But the fact that it has been repeatedly imported by sea and the constant communication between Basra and Indian ports show that there will always be a real need of serious sanitary defences at this port

Plague was for many centuries more or less prevalent in these regions and during the latter half of the nineteenth century the disease lingered in an endemo-epidemic form in certain places in the Euphrates valley and on both sides of the Turco-Persian frontier From none of these centres however did the disease show any tendency to spread to more distant countries

After the revival of plague in China and its spread to India at the end of the last century the disease was first imported to Basra in 1899 and a few cases occurred in the town again in 1900 and 1901 In May 1901 it broke out in Bagdad but the source of the *infection* could not be traced In 1905 1907 1909 and 1911 serious plague epidemics occurred in the Bahrein Islands off the southern shores of the Gulf and spread to some other Gulf ports. In 1907 a few cases occurred in Basra, in 1908 and 1909 the disease was epidemic in Bagdad and in 1910 and 1911 it was present to some extent in Basra. In 1912 cases of the disease were imported to the Basra lazaret by at least five steamers coming from Bombay or infected Gulf ports but in none of these instances did the disease spread to the town In 1913 and 1914 a few cases of plague were seen in Basra, and in 1915 the disease was present in Bender Abbas and Bushire on the Persian Gulf and spread to Mohammerah and Basra and later caused a severe epidemic in Bagdad and Kiazimein.

(To be continued.)

PARAFFINUM LIQUIDUM THE B P STANDARD IGNORED

WE return to the question of the purity of paraffinum liquidum for medicinal purposes When British refined paraffinum liquidum had been on the market for a period of about five months, replacing the German refined article, we called attention to the fact in two special articles in THE LANCET of Oct 2nd and 16th, 1915 pointing out that not only was there great and undesirable diversity in the retail price of medicinal oils offered, but that there was still on sale "Paraffinum Liquidum" of distinctly poor quality, and not conforming in many particulars with the Pharmacopœia standard We suggested also that it was necessary that a standard of viscosity should be established rather than the original one of specific gravity (0 860 to 0 890) The reason for urging the introduction of what appeared to be a new constant (viz., that of viscosity) was that a large amount of very "thin" oil had been imported, and it was shown that this material was not an effective or safe lubricant for the human digestive tract We ultimately suggested as a result of investigating a considerable number of oils, that for medicinal purposes a minimum viscosity of 105 seconds at 100° F (measured on Sir Boverton Redwood s standard viscometer) should be insisted upon Before the end of October it was very difficult to purchase any of these fluorescent, 'thin," ill refined oils from any pharmacist, and since that date almost every test-purchase we have obtained proved to be highly refined and satisfactory liquid paraffin

Recently, however, we learn that there have appeared in the United States a number of oils of American origin which, while they are without fluorescence, odour, or taste, do not conform to the British Pharmacopœia's demands In most cases the specific gravity is too low, being under 0 860 In many cases, when heated with an equal volume of "sulphuric acid in a test-tube placed in boiling water for ten minutes" (B P quotation) they impart an intense blackness to the acid Few of them however, show the presence of sulphur by the ordinary Pharmacopœia test Almost all the American oils that we have examined have a very low viscosity, as will be seen from the following examples —

	Specific gravity	Viscosity at 100° F	Acid test
1	0·850	81 secs	Poor
2	0·854	74 "	Poor
3	0·853	73½ "	Bad
4	0·859	100 "	Good
5	0·857	88 "	Bad
6	0·853	76 "	Poor

Not one of these six oils is really suitable for use in lubricating the delicate mucous membrane of the alimentary canal They are all below the wide limits of the Pharmacopœia in the matter of specific gravity (0 860 to 0 890), five are not equal to the prescribed acid test and all are too 'thin"—too deficient in lubricating properties at body temperature. But that American refiners are quite capable of producing and do produce, a satisfactory medicinal oil and one equal to refined Russian oil is *obvious* from the results below of the examination of an American sample —

Specific gravity at 60° F	0·890
Viscosity at 100° F	235 secs
Acid test	Excellent
Sulphur	Absent

This sample was without taste smell, colour, or 'bloom" (fluorescence) It is evident, therefore that American refiners can produce a good medicinal oil, though for the sake of commercial advantages inferior and possibly harmful products are freely found on the market

We have evidence to show that there have recently appeared in various parts of England oils from American sources which have been distilled from unsuitable crude material and are not refined to the extent that is desirable for medicinal purposes We know that samples of so-called medicinal oils have been purchased in provincial towns and also in London, at a retail price equal to that asked elsewhere for the purest oil, and these oils prove to be "thinner" than any given in the above American list They run like water—not like oil Their

specific gravity at 60° F is 0 850, and their viscosity averages 62 5 seconds—i e, very little more than half of what should be the minimum The response of these fluids to the acid test is better than that of many American oils but is capable of improvement They are so very "thin" that they cannot possibly act as lubricants at body temperature, and are useless if not actually harmful for the purpose Like the famous French writer "we take what is good for us where we find it", and, of course, we welcome American oils so long as they conform to the British Pharmacopœia, 1914 If they be sufficiently viscid, if both physically and chemically they answer all the requirements of the British Pharmacopœia, the introduction of such oils is an enterprise valuable to medicine But if the American refiner is going to keep his good medicinal oil and send us bad material, and if the British market is to be inundated with imperfectly refined or unsuitable oils, medical men and pharmacists should be placed on their guard

It is clearly laid down in the Pharmacopœia that liquid paraffin to be acceptable must have certain definite characteristics It must be a perfectly pure inert lubricant if it is to fulfil the physician's ideas, and we cannot too strongly insist that anything and everything sold in this country under the name of liquid paraffin, or any of its synonyms, should conform in every respect to standard In our opinion, two capital letters on every bottle (B P) should be demanded by the purchaser, and we suggest that the attention of our public authorities should be drawn to this matter before this admittedly useful method of treatment becomes discredited, as the result of refiners ignoring the standard laid down by the British Pharmacopœia 1914

MEDICINE AND THE LAW

Attendance upon the Patients of a Colleague the Ethical Position

IN a trial at the recent assizes at Leeds a medical practitioner, Dr E Heskin, was found guilty of the manslaughter of a female patient through negligence A question arose during the trial as to whether a medical man on the staff of the infirmary who was asked to attend the deceased in the absence of the prisoner and who had not done so, ought to have gone to the woman's assistance Some observations made by Mr Justice Shearman in summing up to the jury have been interpreted as a censure upon the medical practitioner in question or upon a rule of the infirmary which precluded him from attending the case The following summary of the learned judge s observations has reached us, which hardly bears out the suggestion that he found serious fault with anyone in this connexion —

> Whatever might be said about the rule there could be no doubt that Dr Holt was sincerely anxious to do his duty An attempt was made to get some women doctors but they did not seem to understand the seriousness of the case There was a rule of etiquette that one doctor should not attend the patients of another but it was well understood that that rule did not cover cases of urgent necessity No doctor would allow a man to bleed to death in the street because he was some other doctor s patient.

It is quite clear, however, that each case must be governed by its particular circumstances Every hospital must consider the duty to safeguard the interests of the patients within its walls, and equally so every medical man has obligations towards his own patients which may preclude him from hurrying to the assistance of a stranger, as to the urgency of whose need for aid he may not be satisfied This is distinct from the question as to whether he should attend a patient who, he has reason to believe, is already under the care of another practitioner In the case at Leeds Dr Holt, who was referred to in the judge s summing up had been in communication with the prisoner on the telephone, and had been told by him that the case was in his hands and was not one of an urgent character Certainly in such circumstances no medical man, whether in private practice or not, could be blamed if he decided not to attend, even though a relative of the patient asked him to do so

A Profitable Slum Dwelling

At Bradford city police court recently a woman was fined £2 for permitting the occupation of premises not provided with proper sanitary and domestic accommodation In the house there was one water closet in the basement an insanitary sink in the underground kitchen, and a wash basin in another room There were rickety partitions, a leaky roof, dampness, and an absence of any place for cooking or for storing food or anything else The profits made were well shown by the evidence The rent paid by the defendant for the whole house was 9s weekly, and the premises included a shop as to which no charge was made The shop was sublet by the defendant at 4s 6d per week A kitchen five feet below the yard was sublet with another room on the ground floor for 7s Gas was included in this payment, but it will be seen that the landlady s rent was amply covered even if she did not let any more of the house Three persons, however, occupied another room on the ground floor at 6s 6d Two more lived on the first floor, paying 2s 6d each and two young women who shared the leaky attics paid 2s 11d each A gross profit of 19s 10d was therefore realised It is to be hoped that the Bradford corporation, who prosecuted under an Act of Parliament obtained by it in 1913, will not be deterred by the light penalty inflicted from dealing firmly with such people as this defendant

New and "Separated" Milk Blended

O Wheeler, a dairyman at Shepherd's Bush, was fined £40 in the winter for selling milk found to be 10 per cent deficient in fat At the Acton police court he denied on oath having bought "separated" milk from a farm in Somerset during the past 12 months, the suggestion being that milk from which the cream had been extracted was mixed by him with new milk. At the recent sessions at the Central Criminal Court Wheeler was tried for perjury, evidence being given that two churns of separated milk had been sent to him daily from Somerset in accordance with a contract, up to the time when he was summoned, and that only after leaving the police court he had telegraphed ordering its discontinuance and asking for new milk to be sent on the following day in its place He was found guilty by the jury, but sentence was postponed pending the decision of a point of law raised by his counsel that the evidence in giving which the defendant was alleged to have committed perjury was not material to the issue before the court

Public Health.

REPORTS OF SCHOOL MEDICAL OFFICERS FOR 1915

AT *Huddersfield* there were 4215 children inspected according to the routine examination The state of nutrition was found to be "normal" in 97 32 per cent, and "excellent" in 1 87 per cent, there being only 0 81 per cent. below normal, and no instances of actually "bad" nutrition So high a proportion of well nourished children is very satisfactory, and it is in strong contrast with the 35 7 per cent of Liverpool school children found to be more or less defective in this respect. The standard of eyesight was also very satisfactory 88 4 per cent of those examined having normal vision in each eye Dr S G Moore states that the standard of cleanliness of former years has not been maintained, and cannot be regarded as altogether satisfactory He considers the condition to be one of great importance in regard to health The verminous condition has an injurious effect on the children in many ways it disturbs sleep, inhibits power of concentration, leads to formation of sores and frequently to septic infection and malnutrition Of 10 366 children examined as to cleanliness by the school nurses a verminous condition was found in 699 that is 6 74 per cent, as compared with 3 23 per cent in 1914 At the routine medical inspections, however, only 0 12 per cent of pediculosis was found (presumably because the children were got ready for the occasion) Organic disease of the heart was found to exist in 5 out of 2147 boys and in 1 out of 2068 girls Tuberculosis was diagnosed in 71 out of 2147 boys and in 45 out of 2068 girls being glandular (not pulmonary) in all cases but two in 9 other cases (pulmonary) It was suspected

At *Hull* Dr James W Fraser reports that the sleepless nights caused by alarms of possible air raids produced such an effect on the attendance of children at school on the day after the alarm and on the mental capacity of those who did attend that the education committee resolved to close the schools on days when official

otification of a possible raid had been made There were ne such closures. It has now been resolved to close only r the morning session in case of alarm. As Sir Lucius Trigger once observed, there is nothing like being used to thing The total number of children inspected was 14,341. heir nutrition was "normal" in 75 39 per cent., and excellent" in 8 33 per cent. leaving 14·04 per cent. of below normal," and 0·42 per cent of "bad" Perfect sion in each eye was possessed by 39 73 per cent., and a rther 11·93 per cent. had perfect vision in one eye. Cases diphtheria were notified in practically every school during e year there being an increase during the autumn At lifton-street school bacteriological investigation showed ich a large number of positive findings that the infants' partment, and subsequently the two senior departments, ere closed for periods rather over a fortnight Swabbings ill proved to be unsatisfactory and all departments ere again closed until after the Christmas holidays t Clifton street school 56·9 per cent. were found to ive either Klebs Löffler or Hoffmann reactions "It was ecided to treat the Hoffmann cases as positive, and the isdom of this step was shown by the fact that many of e cases which showed the Hoffmann bacilli at the first amination, showed the Klebs Löffler bacilli at the second." an interesting appendix on the prevalence and effects of lenoids it is shown that their incidence amounted to 5·05 r cent in boys and to 6 73 per cent in girls, or 5 79 per nt. for the whole number of children, this is about double e rate of the general incidence (3 per cent) on the school pulation throughout the country It appears that the fection is more common in the eastern than in the milder estern districts of Great Britain.

At *Liverpool* 35,360 children were examined at the specified ge-periods, their nutrition was found to be "normal" in 3·91 per cent. and excellent in 10 36 per cent leaving 35 7 r cent as below normal or bad. The standard of vision as satisfactory 39 46 of those examined having perfect vision each eye and 28 20 per cent. having not less than 6/9 in e or both eyes Classes for children with defective vision ave been held at one of the schools with good results some ildren having improved so much as to be able to return to eir ordinary school and others having left to go to work. rganic disease of the heart was diagnosed in 127 boys and 156 girls the ratio of incidence being 0 80 per cent for e whole number examined. Tuberculosis of the lungs was ound in 0·03 per cent and suspected in a further 0·05 per nt. of the children examined. Non pulmonary tuberulosis was diagnosed in 0 08 per cent. Considerable disganisation both of the medical and of the clerical staff ccurred owing to the war but the requirements of the oard of Education were met Two minor ailment centres r clinics, have been established at which more than 1100 hildren were treated for affections of the skin (mainly npetigo) eyes and ears Very great benefit has resulted om this course of action especially at Garston, where local acilities for the treatment of the poorer classes were practically non-existent Dr E W Hope considers that an xtension of these clinics is desirable

The report of Dr Ernest T Roberts on the medical spection of children in *Glasgow* relates to the period from uly 1st, 1914 to July 31st 1915 The total number xamined was 24 611, and 31 3 per cent were found to be uffering from some disease or defect requiring treatment. Defective dental conditions existed in 22 29 per cent five ecayed teeth being taken as the amount of defect needing ttention Organic disease of the heart was diagnosed in 2 boys and 64 girls being in a ratio of 0 46 per cent for he whole number examined. Tuberculosis of the lungs was ound in 27 children and tuberculosis other than pulmonary n only 18 the incidence on the whole number amounting o 0 182 per cent A satisfactory item in the report is the tatement that no schools were closed during the year on account of infectious disease

The report on school medical inspection at *Bilston* in 1915 refers to a total number of 1595 children examined according to routine as entrants intermediates or leavers Their state of nutrition was found to be very satisfactory at each age-period having been either normal or above the normal in all but 9 per cent of the entrants 7 per cent. at the intermediate age and 5 7 per cent of the leavers In regard to teeth, of the entrants 16 6 per cent. had four or more decayed, of the leavers only 6 9 per cent. As to the condition of vision, out of 1005 children of intermediate age and leavers, 21 per cent (of the eyes examined separately) had less than 6/9 visual acuity Organic disease of the heart was diagnosed in 4 out of 506 leavers and in 2 out of 590 entrants The children were particularly free from tuberculosis, only 7 cases of this disease affecting the lungs (0 42 per cent) being found and no cases at all of tuberculosis in other organs Dr T Ridley Bailey's report is very clear and concise.

The report on medical inspection at *Chesterfield* for 1915 is a brief one, as the work had to be curtailed owing to the war Routine inspection was only carried out in the early months of the year, and from May onwards the sole work done was that at the school clinics where inspections were held twice a week Of the 636 children seen at the routine examinations, entrants, intermediates, and leavers 33 per cent. had defective teeth and 26 per cent are stated to have had defective vision, but the amount of defect is not specified, and in the case of vision presumably the figures do not refer to the entrants At the clinic 795 children were treated, most being cases of affection of the skin (impetigo ringworm) or sore throat, or eye disease. Reinspection is carried out with great thoroughness, a child with any defect being seen five times every year, nevertheless, only 21 3 per cent. of defective children have received treatment As many as 12 or more notices drawing attention to defects have been sent to parents In some cases a letter, drawing attention to Section 12 of the Children Act of 1908 has had an effect on the parent, in future, prosecutions will be undertaken for neglect Dr R Fraser notes the large number of children attending the clinics and excluded from school for long periods for persistent verminous conditions and scabies and recommends domiciliary visiting by the school nurse

At *Guildford* the number of children submitted to routine examination was 982. There appears still to be some reluctance on the part of many parents to have their children examined, as 21 objections were formally made, and 25 children were kept at home on the days notified for inspection. This prejudice has now almost disappeared in most of the large centres of population, where parents have become aware of the benefits resulting from taking "a stitch in time." Of the 296 boys examined at the intermediate and leaving age-periods 51, and of the 253 girls the same number, suffered from some visual defect—that is 18 5 per cent, of the total number examined, the exact amount of defect regarded as needing treatment is not stated Among the 538 boys 10 cases and among the 444 girls 5 cases of heart disease were detected The tuberculosis cases were 7 among the boys, and only one among the girls

VITAL STATISTICS

HEALTH OF ENGLISH TOWNS

IN the 96 English and Welsh towns with populations exceeding 50 000 persons at the last Census, 7865 births and 3585 deaths were registered during the week ended Saturday, August 5th The annual rate of mortality in these towns which had been 10·7 11 1, and 10·4 in the three preceding weeks, rose in the week under notice to 10·8 per 1000 of their aggregate civil population estimated at 17,312,295 persons for the year 1915 During the first five weeks of the current quarter the mean annual death rate averaged 10 8, or the same as the corresponding rate in London. Among the several towns the death rate last week ranged from 4 2 in Warrington 4·4 in Eastbourne 4·6 in York, and 5·0 in Swindon, Smethwick, and Barrow in Furness, to 16·0 in Bootle 18 8 in Carlisle 19 7 in Tynemouth, 22·0 in St Helens, and 22 1 in Walsall

The 3585 deaths from all causes were 116 above the number in the previous week and included 228 which were referred to the principal epidemic diseases, against 222 212, and 221 in the three preceding weeks Of these 228 deaths, 82 resulted from infantile diarrhœal diseases, 53 from measles, 40 from diphtheria 25 from whooping-cough, 14 from enteric fever and 14 from scarlet fever, but not one from small pox. The annual death rate from these diseases was equal to 0·7, against 0·7 0·6, and 0·7 in the three preceding weeks The deaths of infants (under 2 years) from diarrhœa and enteritis, which had been 51 46 and 72 in the three preceding weeks further rose to 82 last week, and included 18 in London, 7 in Liverpool and 6 in Birmingham The fatal cases of measles, which had been 62, 59 and 64 in the three preceding weeks, fell to 53 last week, and included

24 in London, 8 in Liverpool, and 3 each in West Ham, Birmingham, and Sheffield The deaths from diphtheria, which had been 47, 43, and 35 in the three preceding weeks, rose to 40 last week, and included 16 in London, 6 in Stoke on Trent, and 3 in Liverpool The deaths from whooping cough, which had been 40, 42, and 36 in the three preceding weeks, further fell to 25 last week, and included 5 in London and 3 in Liverpool The fatal cases of scarlet fever, which had been 15, 17, and 9 in the three preceding weeks, rose to 14 last week, and included 2 in London The deaths from enteric fever, which had been 7, 5, and 5 in the three preceding weeks, rose to 14 last week, and included 2 each in London, Plymouth, Manchester, and Bradford

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and in the London Fever Hospital, which had been 1236, 1216 and 1221 in the three preceding weeks, fell to 1173 on Saturday last, 121 new cases were admitted during the week, against 150, 172, and 171 in the three preceding weeks These hospitals also contained on Saturday last 1253 cases of diphtheria, 189 of measles, 145 of whooping cough 38 of enteric fever, but not one of small pox. The 936 deaths from all causes in London were 58 above the number in the previous week, and corresponded to an annual death rate of 11 3 per 1000 The deaths referred to diseases of the respiratory system, which had been 117, 99, and 90 in the three preceding weeks, rose to 99 in the week under notice

Of the 3585 deaths from all causes in the 96 towns, 173 resulted from violence, 300 were the subject of coroners' inquests, and 1187 occurred in public institutions The causes of 28, or 0 8 per cent, of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest All the causes of death were duly certified in West Ham, Bristol, Stoke-on Trent, Leicester, Nottingham, Salford, Bradford, Leeds, Hull, Newcastle-on Tyne, and in 70 other smaller towns Of the 28 uncertified deaths, 7 occurred in Birmingham, 6 in Liverpool, and 2 in Blackpool

HEALTH OF SCOTCH TOWNS

In the 16 largest Scotch towns with an aggregate population estimated at 2,372,000 persons at the middle of this year, 1068 births and 508 deaths were registered during the week ended Saturday, August 5th The annual rate of mortality in these towns, which had been 12·6, 11 2, and 12 5 in the three preceding weeks, fell to 11 2 in the week under notice During the first five weeks of the current quarter the annual death rate in these towns averaged 12 0, or 1 2 per 1000 more than that recorded in the large English towns Among the several towns the death rate last week ranged from 6 9 in Coatbridge and in Clydebank, 8 6 in Perth, and 8 7 in Motherwell, to 14 7 in Hamilton, 16 8 in Greenock, and 17 1 in Ayr

The 508 deaths from all causes were 58 below the number in the previous week, and included 36 which were referred to the principal epidemic diseases against 39 and 37 in the two preceding weeks Of these 36 deaths, 15 resulted from infantile diarrhœal diseases, 8 from measles, 5 from scarlet fever, 4 from diphtheria, 3 from whooping cough and 1 from enteric fever, but not one from small pox. The annual death rate from these diseases was equal to 0 8, against 0 7 per 1000 in the large English towns The deaths of infants (under 2 years) from diarrhœa and enteritis, which had been 8, 7, and 15 in the three preceding weeks, were again 15 last week, and included 6 in Glasgow, and 2 each in Dundee, Aberdeen, and Paisley The fatal cases of measles which had been 18, 17, and 7 in the three preceding weeks, were 8 last week, and included 2 in Greenock The deaths from scarlet fever, which had been 7, 3, and 5 in the three preceding weeks, were again 5 last week The fatal cases of diphtheria, which had been 3, 6, and 6 in the three preceding weeks fell to 4 last week, and included 2 in Kirkcaldy The three deaths from whooping cough were recorded in Glasgow, Dundee, and Coatbridge, and the death from enteric fever in Greenock

The deaths referred to diseases of the respiratory system, which had been 50, 62, and 40 in the three preceding weeks, rose to 58 last week but were 12 below the number registered in the corresponding week of last year The deaths from violence numbered 33, against 22 and 32 in the two preceding weeks

HEALTH OF IRISH TOWNS

In the registration area of Dublin 207 births and 107 deaths were registered during the week ended Saturday, August 5th The annual rate of mortality which had been 18 8, 15 2, and 14 4 in the three preceding weeks, further fell to 14 1 per 1000 in the week under notice, against 11 3 and 11·0 per 1000 in London and Glasgow respectively

Of the 107 deaths at all ages 12 related to infants under 1 year, and 30 to persons aged 65 years and upwards Three deaths of infants (under 2 years) were referred to diarrhœal diseases, and 1 fatal case of enteric fever and 1 of measles were registered

The causes of 4 deaths were uncertified, and 3 others were the subject of coroners' inquests, while 63 or 59 per cent of the total deaths occurred in public institutions

During the same period 152 births and 95 deaths were registered in the city of Belfast The deaths corresponded to an annual rate of 12 7, or 0·3 per 1000 more than in the previous week, and included 20 of infants under 1 year of age, and 18 of persons aged 65 years and upwards Two deaths were referred to measles, and 2 each to scarlet fever, diphtheria, and infantile diarrhœal diseases The causes of 9 deaths were the subject of coroners' inquests, and 3 deaths occurred in public institutions.

THE SERVICES

ROYAL NAVY MEDICAL SERVICE

Staff Surgeons to be Fleet Surgeons J S Dudding, N H Harris, L Lindop, C T Baxter, W E Gribbell, R W B Hall, H V Wells, W Bastian, R B Scribner, A. I Sheldon J Whelan, and C R Rickard

To be temporary Surgeons N K. Henderson and W B Gabriel

ARMY MEDICAL SERVICE

Colonel M T Yarr to be temporary Surgeon General while a D M S (without the pay or allowances of that rank)

Lieutenant-Colonel H H Tooth, R A M C (T F) to be temporary Colonel

ROYAL ARMY MEDICAL CORPS

L S Dudgeon (late temporary Lieutenant Colonel R A M C) to be temporary Lieutenant-Colonel

Majors (temporary Lieutenant-Colonels) relinquish the rank of temporary Lieutenant-Colonel on re posting Sir Edward S Worthington, A F Carlyon and D L Harding

Temporary Lieutenant-Colonel Sir J R A. Clark having ceased to be in charge of the St John Ambulance Brigade Hospital, relinquishes his commission

Temporary Honorary Major C J Trimble to be temporary Lieutenant-Colonel whilst in charge of the St. John Ambulance Brigade Hospital

Captain (temporary Major) V T Carruthers relinquishes the rank of temporary Major on re posting Temporary Captain L E Owen to be temporary Major

Temporary Honorary Captain T Houston to be temporary Honorary Major whilst employed with the St John Ambulance Brigade Hospital

Lieutenant-Colonel Charles C Heywood, from Manchester Regiment (T F), to be temporary Major

Robert A Fleming (Captain, R A M C, T F) to be temporary Major whilst in charge of a Medical Division of a General Hospital

Temporary Captains to be temporary Majors J W Struthers, J S Morrow, and J C Woods (whilst serving at the Palace Green Hospital)

H Wiltshire to be temporary Major

Temporary Captain W J Maloney relinquishes his commission on account of ill health

Temporary Captains relinquishing their commissions C M Hoare and H R Bramwell

Temporary Lieutenants to be temporary Captains D T C Frew, R D Davy S A Hall, A H Tovey, A F Bell J McG Johnson F T Simpson, A. M Fisher F McKee C O Walsh, H E Moore, P L L Craig, D T Skeen, C H Shearman R Fell, A F Cole, H L Dixon, T Marlin, A. H Walker, H E Humphrys, P Daly, H Quigley, W H Compton, J P Musson, W R Allen, T J H Hoskin A Robb-Smith, R W Sutherland, R Briffault I W Corker, G R Gray, W E Stevenson, N McC Boyce, J A Mescall, A. Climie, D Whyte, C J West J M Whyte A Frew J F W Leech C F Nicholas, H W Dyke H W Hodgson W F O Regan, E C Cunnington, H Hodge H Croly, S W Williams, G R B Purce, A W Mitchell, J K Small R W Statham, D A Birrell, F H Allfrey, W Russell, W H. McWalter, T D Moffatt, A M J Halligan C S Miller, F C Tibbs D Wilson, R W E Roe, T C Ritchie J E Power, A Peden A K Flower, E D F Hayes G O F Alley S G Vinter, J C Fisher, A D Hamilton, F G Ralston D Renton L S Shoosmith E H Paddison R Dow J M Smeaton T S Reeves M T Morgan A W Baker P V Early, J R McVail H P Hall G Buchanan, G R Plaister, C L Miller A Z Phillips H L H Greer A J W Cunningham, A Patrick I B Martin, J Patrick D Glen, R Millar R D Nasmyth T Campbell, W R. Tait G B Kennedy F R Hassard G W Anderson P Quesnel C Verge, L R Meech, R W Young A T Bond G A Simmons C B Davies W C McN Dickey H S Smith A E Lundon, G T O Donnell, A D Desmoiers W F Jones, C Russell, A. C Major F C H Piggott G M Brown, W B Gourlay S P Hodkinson C J Young S A Hany

H Slater, T H. Thomas J K. Stewart, J R Brvce, C F Brady, G Kennedy, H. W Pigeon, D Miller, H. Appleton, W K. McIntyre, C McK Craig, J McL Gibson, G P Wilson A. Chalmers, C Mitchell, J Simpson, J T Murphy, E Underhill, F J P Daly, S Forrest J F Dow, B Malaher, P J Kelly, A. C Keay, P McDougall, F W Chamberlain, M. Krolik, T L Clark, W N Child, D E Morley, W G Scott, and F N Stewart

To be temporary Captains R M Beaton, C T Parsons, C E Murphy, R T Smith, and temporary Lieutenant W Elwood.

Temporary honorary Lieutenants to be temporary Lieutenants M K. Robertson, F C Ormerod, P E D Pank, G P B Huddy, G Moulson, and T D Morgan

To be temporary Lieutenants J A. Aitken, T Jones, J Kirk, M Lyons, E G D Murray, A. H. Bloxsome S J Brennan R D Brennan H E Scoones, D K. Henderson, J H Wilson W Dickson W H. Robinson, A. H Turner, Lieutenant R D Ferguson (Canadian A.M C) C A. Holburn, E P Duncan, W G Souther, R McLaren P K. McCowan, P W Dove C P Charles F C V Thompson R C Crawfurd, P C West J H. D Webster A. B Coomber, C T L Clarke, J Sterry A. H. Davies, H A. Tillman H G Browning H. R Marsh J M Hammond, W A. MacKay, J Butler W R Wylie, D Craig H. Findlay, F W Falconer Lieutenant P S MacLaren (Canadian A.M C), W R D Daglish, J M Taylor S J Havlock, J L O Tilley, C J D Bergin, R M Gordon, R S Park, G B Wild A. F W Denning, A. W George, A. G Reid R H. Smythe, E D S Hevliger, C C Mecredy, W P MacKasey, N Kennedy, C J R Hoffmeister E H. Morris, E E T Nuthall, H W Garden, and H G Kilner

To be temporary Honorary Lieutenants G C Hartley and D O Richards

Temporary Lieutenants relinquishing their commissions H. Lasnier, R Ingram, F Heatherley, J Hunter, H E Brawn E W Goble, D E Fenwick, J S E Selby C Ede, H. J Hoile, T F Wilson, J Landman, H. W Sinclair, P McGibbon, D W Davis, W S Badger, R D Laurie, J J G Pritchard, F S B Fletcher, C F Fothergill, A. Shearer, H D Everington, R M MacLennan L P Black A. T Moon H G Wood Hill, A. M Watts, F W Lyle, A. M M. Roberts A T Johns O R P Muller, D S Macbean W E Peck, W Lumsden, W Browne, E J Chambers, C V Knight J Menzies, B Blacklock, A. McEwan M B Stuart, W H. N Bright, H C Meacock E Fullerton J E Prentis (on account of ill health) W W Kennedy, R Paul, T J Waddell, R J Gordon, D A. McAulay F A. Keilor H. H. Planche L G Gunne, G E Richards, W Dickson J S McCallum C C Hargreaves (on account of ill health) and G R Naylor

Temporary Honorary Lieutenant E Aylward relinquishes his commission on ceasing to be employed with No 8 British Red Cross Hospital, and temporary Honorary Lieutenant W E N Dunn on ceasing to be employed with the British Red Cross Hospital Netley

To be temporary Honorary Lieutenants whilst serving with No 8 British Red Cross Hospital A. Banks and C E Sparks

Temporary Honorary Majors from the Australian Voluntary Hospital, to be temporary Majors R Dick and S W Patterson

Temporary Honorary Captains from the Australian Voluntary Hospital, to be temporary Captains R V McDonnell and B T Edye

Temporary Honorary Lieutenant Cecil Charles Coghlan from the Australian Voluntary Hospital, to be temporary Lieutenant

INDIAN MEDICAL SERVICE

The King has approved relinquishment by the under mentioned of the temporary rank of Lieutenant Sobha Ram Kapoor and Ardeshir Behramshah Pestonji.

SPECIAL RESERVE OF OFFICERS

Royal Army Medical Corps

Cadets from Glasgow University Officers Training Corps to be Lieutenants T Blackwood, J P Broom A. C Brown J W Daglish J F Duthie, J Ewing E G S Hall R W MacDonald, D B McIntosh, J W Maclean, A. F McMillan, R Rodger and (ex Cadet) J A. Buchanan

Cade G Lapage from Manchester University Officers Training Corps to be Lieutenant

Cadet from Leeds University Officers Training Corps to be Lieutenant Cyril Reginald Knowles.

Cadet, from Aberdeen University Officers Training Corps to be Lieutenant G J Key

Cadets from University of London Officers Training Corps to be Lieutenants J M H Campbell P D H. Chapman and R S Aspinall

Cadets from Birmingham University Officers Training Corps to be Lieutenants E B Alabaster D F Standing, and R J Staley

Cadets from Cambridge University Officers Training Corps to be Lieutenants W F Haultain and D D Evans

To be Lieutenants J B Steven, K. J T Wilson, R Isbister T Gray M Dwyer, D S Scott, N H. Harrison, W H. Dye, A. H Craig, and G Ewen

TERRITORIAL FORCE

Army Medical Service

Colonel D J MacKintosh from Assistant Director of Medical Services, Lowland Division, to be Colonel

Royal Army Medical Corps

Eastern Mounted Brigade Field Ambulance Major (temporary Lieutenant-Colonel) W Archibald relinquishes his temporary rank on ceasing to command a Field Ambulance

East Lancs Field Ambulance Major W L Bentley to be temporary Lieutenant-Colonel whilst commanding a Field Ambulance Lieutenant J Bruce to be Captain

West Lancs Field Ambulance A. H. Pinder to be Lieutenant Major H Halton, from West Lancs Field Ambulance, to be Major Captain G B Robinson, from a T.F Field Ambulance to be Captain

London (City of London) Field Ambulance Captain J M A. Costello, from Attached to Units other than Medical Units, to be Captain

North Midland Casualty Clearing Station Major A. R Henchley to be temporary Lieutenant-Colonel whilst commanding a Casualty Clearing Station Captain A Heath, from North Midland Field Ambulance, to be Captain. Lieutenant J W Archibald to be Captain

2nd London Sanitary Company Lieutenant C H. Lilley to be Captain.

South Midland Mounted Brigade Field Ambulance A. E Crabbe to be Lieutenant

Southern General Hospital Captain J H Dawe resigns his commission on account of ill health

Eastern General Hospital Major R A. Milligan is seconded.

London Field Ambulance A C Smith to be Lieutenant

West Riding Field Ambulance To be Lieutenants L A. Williams, M. B G Sinnette, and H Yallow

Attached to Units other than Medical Units—Major W A. Smith, East Lancs Regiment, to be Major (temporary) Captain G S Ward and J Orton to be Majors Lieutenant L A. Wilson to be Captain F Gamm to be Lieutenant

Obituary.

WILLIAM TAYLOR, M.D EDIN., F R C P EDIN

THERE passed away on July 31st at his residence in Edinburgh one of the oldest members of the medical profession in the city A native of Forfarshire, he received his medical education at Edinburgh University where he graduated in 1867 He became assistant to the late Professor Laycock in the department of practice of medicine, and later demonstrated for Professor Spence, whose 'Systematic Surgery' he edited. When assisting with the practical teaching of surgery he was most popular with the students in his classes in minor surgery He also assisted in the electric department of the Infirmary and did considerable obstetrical work which was of practical value in securing for him a large private practice. He was for a time resident surgeon at the Maternity Hospital, Edinburgh He was a Fellow of the Royal College of Physicians and also a member of the Scottish Society of Arts

Dr Taylor is survived by two sons and two daughters One of his sons, Dr Macrae Taylor, is at present serving as major in the R.A.M C, and one of his daughters is nursing abroad in connexion with the war He will be much missed in Edinburgh by a large circle of friends.

THE LATE DR A. H. LISTER

Dr Matthew Hay has sent us an appreciation of Dr A. H. Lister in which he says 'Arthur Lister quickly made many friends in Aberdeen, and had become so attached to the most northern of British Universities and cities that when he completed his medical course he had, in spite of strong professional inducements to return to the south, virtually decided to settle in practice in the city of his professional birth. He married almost immediately afterwards a daughter of Sir Reginald Palgrave, and it may be said that Aberdeen has never known more gracious and winning personalities than those of Arthur Lister and his cultured wife. His university reputation—he was *facile princeps* of the graduates of his year his somewhat maturer age than that of the ordinary medical graduate—for he had been in

for a few years before entering medicine, his unusual attractiveness of manner and extraordinary sympathy with human suffering, and his whole-hearted devotion to the well-being of his patients won for him almost instantly one of the best and most select medical *clienteles* in the north He was fortunate in being appointed early to an assistant physicianship in the Royal Infirmary almost imme diately after beginning practice, and the infirmary staff had never a more assiduous and thoughtful worker He grudged no effort or time in the investigation of his cases, and must have accumulated a large body of most careful and searching notes He was too diffident of his own prowess, perhaps his ideals were too high But had he lived longer, and had his health permitted, several contributions of great clinical and scientific value might have been expected from him Although always cheerful and ever eager to respond to any call to work, he had for many years been handicapped by his health More than once in recent years he had been obliged, on medical advice, to take a prolonged holiday But he had an unconquerable passion for work, and had no sooner returned to the city than he was found to be under taking duties beyond his real strength This was shown in the prompt offer of his services to the Army authorities when the war broke out, and there can be no doubt that his unstinted devotion to these services in a trying climate was the immediate cause of his death.

Perhaps because of his own health he had begun earlier in his professional life to make a special clinical study of tuberculosis, and had for several years before his death become one of the two or three leading clinical authorities and consultants in Scotland on this disease He prepared an admirable and elaborate thesis on the value of X rays in the diagnosis of pulmonary tuberculosis which obtained for him his Doctorate of Medicine with honours He was one of the first in this country to advocate and publish a compre hensive scheme for combating tuberculosis Some years later, when a scheme was finally put into practice in Aberdeen by the municipality, he voluntarily undertook to give for nearly two years invaluable aid in developing and supervising the clinical part of the scheme The clinical records thus obtained by himself and under his supervision are almost unique in their completeness

He inherited much of the scientific instinct of the Lister family, and he had all the gentleness and charm of manner of his distinguished uncle He was an excellent clinical teacher, and was beloved by his pupils If it were possible he was still more beloved by his patients His colleagues found in him a constant example of great ability with great modesty, of eagerness to learn from all with an equal readi ness to impart, and of a knightly sense of courtesy and honour This terrible war has brought to Aberdeen, as elsewhere, many notable losses, but no death is more widely and deeply mourned in our city than that of Arthur Lister"

THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH —The board of scientific directors of this founda tion announce the following promotions and appointments Dr A R Dochez, hitherto an associate in medicine, has been made an associate member, Dr H T Chickering has been appointed resident physician in the hospital, to succeed Dr Dochez. The following have been made associates Dr Louise Pearce (pathology and bacteriology) and Dr F L Gates (pathology and bacteriology) The following have been made assistants Dr O Robertson (pathology and bacterio logy) and Mr E Wildman (chemistry) The following new appointments are announced Dr Rhoda Erdmann, asso- ciate in the department of animal pathology, Dr R A Morrison, assistant in medicine and assistant resident physician, Dr J Northrop, assistant in the department of experimental biology, Dr Jean Oliver, assistant in the department of pathology and bacteriology, Dr E Smillie Fellow in the department of animal pathology Dr W D Witherbee assistant Mr H Wastenevs, hitherto an associate in the department of experimental biology, has been appointed as associate professor of pharmacology in the University of California Dr F C McLean hitherto an assistant resident physician in the hospital of the institute, has been appointed by the trustees of the Union Medical College, Pekin, to the professorship of internal medicine, this appointment carries with it the headship of the Union Medical School The Union Medical College is one of the institutions of the China Medical Board of the Rockefeller Foundation Dr McLean is now going to Japan Korea, and China as representative of the China Medical Board

The War.

THE CASUALTY LIST

THE following names of medical officers appear amo casualties announced since our last issue —

Killed

Lieutenant B R Roberts, R A M C was educated Queen's College, Galway, and qualified at Edinburg 1898 Prior to the war he was medical officer to Central South African Railways

Captain J L Green, R A M C, V C, attached to Sherwood Foresters, previously reported "mis believed killed," and to whom the posthumous ho of the V C is reported in THE LANCET of to-day w educated at Cambridge and St Bartholomew's Hosp London, qualified in 1913

Captain J H Beilby, R A.M C, attached to the Worcest shire Yeomanry, was educated at Edinburgh and Vienna, and qualified in 1889 Before joining R A.M C he was in practice at Bromsgrove, Worcest shire, and was surgeon to the local cottage hospital

Died of Wounds

Captain R M Dennys, Loyal North Lancashire Regime who was a combatant officer, was educated at W chester and St Bartholomew's Hospital, Lond qualifying in 1909

Lieutenant W G Shand, R.A.M C, attached to t Lancashire Fusiliers was educated at Glasgow Un versity, qualifying in 1903 Before joining the R A M C he was in practice at Salford

Captain O H Peters, R A M C, qualified M B Melbourn in 1902, and joined the R A M C soon after the outbrea of war

Wounded

Captain W S Garden, R A M C, attached to the Nort umberland Fusiliers

Captain E H Griffin, R A M C attached to the Northumb land Fusiliers

Captain J P Walsh C A M C, attached to the Canada Infantry

Captain H C Bruce, R A.M C, attached to the Argyll and Sutherland Highlanders

Lieutenant R S Gibson R A M C, attached to the Roy Garrison Artillery

Captain A. C Hancock R A M C

Captain J R N Warburton R A.M C

Captain J Ferguson, R A M C

Captain C M Jones, R A M C, attached to the Royal Fie Artillery

Captain W A. Taylor R A M C

Lieutenant W E H Beard R A M C, attached to th Manchester Regiment

Captain A. Hines R A M C attached to the York an Lancaster Regiment

Captain M Scott, R A M C attached to the Norfolk Regiment

Captain J D Wilkinson R A M C, attached to the Ro al Field Artillery

Lieutenant P J Lane R A M C

Second Lieutenant S J Cowell R A M C

Lieutenant C W Sharp R A.M C

Previously reported Believed Prisoners at Kut el Ama now reported Prisoners

Major E V Azlen, R A M C

Colonel H O B Browne Mason, R A M C

THE HONOURS LIST

The Victoria Cross

The King has conferred this coveted distinction upon following member of our profession who unfortunately his life in carrying out his noble action —

Captain John Leslie Green, R A M C

For most conspicuous devotion to duty Although himself wou he went to the assistance of an officer who had been wounded was hung up on the enemy's wire entanglements and succeeded dragging him to a shell hole where he dressed his wounds standing that bombs and rifle grenades were thrown at him whole time Captain Green then endeavoured to bring the wo officer into safe cover and had nearly succeeded in doing so he was himself killed

OBITUARY OF THE WAR

HUBERT COWELL MULKERN, M R C S ENG, L R C P LOND,

CAPTAIN ROYAL ARMY MEDICAL CORPS

Captain H C Mulkern, who was killed in action in France n July 1st was a student at St. Mary's Hospital Medical chool where he entered in 1899 taking his medical ualification in 1906 At this time he was a keen ssociation football player, and was a trooper in the Westminster Dragoons After qualifying he settled in practice at Kingston - on - Thames where he made a large connexion At the outbreak of war he at first took a post as civil surgeon to the Depôt Hospital, East Surrey Regiment, and later obtained a commission in the Royal Army Medical Corps, being attached to the Northumberland Fusiliers After other transfers he finally became battalion medical officer to the 9th Royal Inniskilling Fusiliers and remained with

em until he met his death. He was shot through the eck as he was standing close to his dressing station and eath was almost immediate.

His commanding officer wrote of Captain Mulkern to his rother "He had endeared himself to all ranks in a remarkble degree, to me personally he was a very dear comrade often consulted him and he was a great support to me in any ways' And a senior medical colleague adds Mulkern was absolutely fearless I knew him intimately, nd he was one of my officers for whom I had the greatest dmiration and regard'

Captain Mulkern married in 1907 Miss Florence Vouler, ho predeceased him

HAROLD GARRETT CHAPLIN M D LOND, M.R.C S ENG, L.R.C P LOND,

SURGEON ROYAL NAVY

Surgeon H Garrett Chaplin who lost his life, at the ge of 28 years when H M S *Hampshire* was sunk on une 5th, was the third son of Mark Chaplin merchant of t Johns Newfoundland He received his early education at the Methodist College, St. Johns matriculating in 1907 as an outside student in the London University In the following year he entered St Thomas's Hospital London, where he had a distinguished academical career, graduating with distinction in medicine and surgery in 1914 and being gold medallist for that year At the outbreak of war he resigned his post of house surgeon and obtained a commission in the Navy He first served on H M S *Victory* then on the

ospital ship *Aeadir* where he had ample scope in ending Belgian wounded and refugees and was finally ransferred to H M S *Hampshire* where his family was nformed 'that he died at his post doing his duty ne of the few survivors stated that the last he saw of Chaplin was in his shirt-sleeves, bandaging the wounded after the explosion, the ship was then sinking"

A relative writes to us that Surgeon Chaplin had throughout his short life responded to the call of sacrifice without counting the cost. His powers of resistance had been severely tested on two occasions Once with two companions, all in their teens, he had travelled on foot across the barren wilds of Newfoundland reaching his destination at the point of exhaustion Again on a sailing vessel adrift in the Atlantic without food or water he was only rescued after 92 days' buffeting by wind and wave as the ship was sinking His last adventure was doubtless nobly borne

ERNEST CHARLES LAMBERT M R C S ENG, L R C P LOND M D BRUX,

LIEUTENANT ROYAL ARMY MEDICAL CORPS

Lieutenant E C Lambert, who died of wounds in France on June 30th at the age of 41 years was born at Redhill and educated at Redhill Grammar School, where he gained two scholarships He took his medical training at Westminster Hospital, qualifying at the age of 22, when he was appointed assistant medical officer and pathologist to the Darenth Asylum. After 14 months he applied for a transfer owing to ill health and was given a similar post at Banstead. During his residence there he went to Brussels, graduated M D of that University in 1903 and finally settled in private practice at Wandsworth in 1905 becoming assistant medical officer to the workhouse He joined the Royal Army Medical Corps in November, 1915, and after some months' training with the 12th Surreys he left for France in the spring Whilst attending a wounded man on the night of June 22nd a shell burst at his feet, covering him with wounds His condition was serious but his commanding officer wrote that there was good hope of his recovery, and spoke of the pluck and cheerfulness with which he bore his pain. Unfortunately however, when two or three days later he was removed to the base hospital hæmorrhage occurred, and he died of his wounds Lieutenant Lambert leaves a wife and two small children

A colleague writes of him "Lambert was the ideal type of general practitioner gentle and generous to the poor, wise and kindly to all His loss will be felt quite as much for his quality as a man as for his capability as a doctor'

DEATHS AMONG THE SONS OF MEDICAL MEN

The following sons of medical men must be added to our lists of those who have fallen during the war —

Second Lieutenant R L Binns Yorkshire Regiment, son of the late Dr W Binns East Bergholt, Suffolk.

Captain L O Crombie, Middlesex Regiment, son of Dr J Crombie of Sidcup Kent

Second Lieutenant H Latimer, Royal West Kent Regiment, only child of Dr H A Latimer, of Tunbridge Wells

Lieutenant E V Cheese Army Pay Department, younger son of the late Dr J Cheese of Wimbledon, London

Second Lieutenant F L Young Northumberland Fusiliers, sixth son of Dr R Young of Rovton Lancs

Second Lieutenant D D D K Moir, Yorkshire Regiment, second son of Major J D Moir R.A M C, of Bayswater, London

Private R C Power, Royal Fusiliers, only son of Dr E T Power of Atherstone Warwickshire

Captain A. C O Connor Norfolk Regiment only son of Colonel A P O Connor C B A.M S

Second Lieutenant P M Alexander Gordon Highlanders, eldest son of Dr S P Alexander, of Southsea

Captain V G Duke Royal Garrison Artillery, son of the late Colonel A W Duke R.A M C

Lieutenant A L H Ferguson, Gordon Highlanders, son of the late Surgeon Major Ferguson
Lieutenant S Jalland, East Yorks Regiment, youngest son of Mr W H. Jalland, F.R C S, of York.

THE CENTRAL MEDICAL WAR COMMITTEE

A meeting of the Committee was held on Wednesday, August 9th, when the Committee was reappointed with certain modifications among the *ex officio* members resulting from the changes in the officers of the British Medical Association The *ex-officio* members of the Committee are now Sir T Clifford Allbutt President of the British Medical Association, Mr E B Turner, chairman of Representative Meetings, Dr J A. Macdonald chairman of Council, and Dr G E Haslip, treasurer Dr T Jenner Verrall was re-elected as chairman of the Committee for the ensuing year, and the Executive Subcommittee and secretaries were re appointed

The Reference Committee of the English Royal Colleges

The work of the Committee of Reference of the English Royal Colleges has been of great value in assisting the Central Medical War Committee, for the exemptions of medical men attached to hospitals in the London area have been a difficult and delicate matter of arrangement. There still seems to be a doubt in the minds of some admirably philanthropic persons as to whether there is really a war proceeding on which the very existence of the nation depends They regard interference with the organisation of the institutions in which they are interested as unthinkable, in spite of the country having willingly adopted compulsory service They speak of this or that member of the staff as indispensable, meaning thereby that the particular officer has made himself so generally useful that the hospital authorities would find themselves in a difficulty if he were to leave. It has actually been stated by a governor of one hospital that if Dr So and So is taken, the hospital must close—a scathing criticism on the gift of organisation possessed by the hospital authorities When the so-called indispensable members of hospital staffs are comparatively young unmarried men, they are just the men who, in these strenuous times, are indispensable to the nation, and the only consideration that should be allowed to weigh with the institutional authorities is the question of whether a man is indispensable to the nation in some capacity or other If the young doctor becomes indispensable to the nation, he must be allowed to take a commission and his work must be distributed amongst those who are allowed to remain at home, or who are over military age

This is very obvious to all of us in a general way, but when the work of a splendid charity is in question it is hard for those whose energies are absorbed in the conduct of its affairs to realise where the sacrifice of personnel should begin and end It is in just these difficult positions that the work of the Central Medical War Committee, through the Reference Committee of the English Royal Colleges, has proved so useful

"PRO PATRIA."—We have received from Sir Lauder Brunton a communication indicating the need for a directory to hospitals for sick and wounded combatants and other agencies providing for assistance relief, and guidance in these days of national testing Under the title of "Pro Patria," a guide to public and personal service in war time will be issued immediately The work has been prepared under the editorial supervision of Dr T N Kelynack and it is to be published by Messrs John Bale Sons, and Danielsson, Limited, at 3s 6d net The volume will contain original communications from Lord Sydenham, Sir James Yoxall, M P, Sir Robert Baden-Powell Mr Charles W Cathcart, F R C S Sir Henry Morris, Professor F J C Hearnshaw, Professor J S Mackenzie, Mrs Fawcett, Major Leonard Darwin, and others The main part of the volume is devoted to signed authoritative communications regarding the aims and work of the chief associations and institutions rendering public and personal service in war time Lists are also provided of the names, addresses, number of beds of the chief Red Cross hospitals the names and addresses of the county directors of the Joint Committee of the St John Ambulance Association and the Red Cross Society the Presidents and honorary secretaries of the branches of the British Red Cross There is also a bibliography of patriotic and war books and much other material likely to be of practical service

Correspondence.

'Audi alteram partem

TUBERCULOSIS AND THE WAR

To the Editor of THE LANCET

SIR,—The address by Sir William Osler on the tuberculous soldier in your issue of August 5th must carry conviction owing to the manner, at once scientific and humane in which the problem is presented, and by virtue of the fairness of his conclusions Nevertheless, I beg to dissent from some of the suggestions, which do not appear to be corollaries to his main proposition

Sir William Osler's classification of the types of tuberculous combatants does not differ, to any great extent from the grouping suggested in my letter of June 3rd and he also believes that no great increase in tuberculosis is to be expected in that portion of the community which has undertaken military service, and again agrees that the treatment of these cases after discharge should be undertaken by the civil authorities Now the machinery for treatment is already in our hands, provided local authorities can be induced to do their duty That they have not done so is due to want of central clinical and administrative control. If the welfare of discharged tuberculous combatants is to be placed in the hands of a small central committee of the National Association for the Prevention of Tuberculosis in conjunction with representatives from three other public bodies, it is likely to encourage slack local authorities in their desire to allow other people to do the work and bear the expense Sir William Osler does not suggest a new name for this committee, but he is virtually creating a new society without rendering himself liable to the extreme penalty which he advocates for those who do so

The considerations which lead me to express this dissent are as follows As the primary duty of the medical departments of the services is to raise and to maintain the health of our combatants at the highest degree of fighting efficiency it would be against the national interest to ask that they should organise and carry out schemes for treating those invalided on account of tuberculosis This treatment must be left to the civil authorities In the United States navy the institution of naval sanatoriums was followed by a rise in the ratio of tuberculosis, owing to the tendency to discharge cases of arrested disease to duty, since service afloat is contraindicated for every tuberculous subject. On the other hand it might be maintained that if full inquiry showed the incidence of tuberculosis to be increased by the conditions of active service the service departments concerned might make a grant to those civil authorities on whom the burden of treatment must eventually fall

Even if the service authorities provided sanatorium treatment for all tuberculous invalids little would be done to eradicate the malady, since the men would return to home conditions under which the disease would again develop and spread Some have advocated "segregation camps" in which the invalided consumptive would be compelled by law to reside until he died Apart from its inhuman interference with individual liberty, this scheme would only do harm Compulsory segregation is in vogue in the city of New York without having any influence on the death rate, since the patients prefer to hide the fact of their illness and creep away to garrets to die without medical attendance Moreover, this scheme does not touch the silent stream of tuberculous infection flowing through childhood to adult life in our great industrial centres, and finally breaking out as active declared disease All these schemes are old heresies long since hunted from pillar to post and to the stake

A more dangerous doctrine has recently been promulgated to the effect that direct measures against tuberculous infection are of little value, and that if all the money spent on dispensaries and sanatoriums had been devoted to improvement in the housing of the poor the results would have been better It is pointed out that in Scotland between 1850 and 1880, prior to any attempt to check infection the fall in the phthisis death rate was so great that had it continued the disease would now be well nigh extinct and that this fall was associated with improvements in general sanitation These facts are true but the deduction

drawn from them belongs to that class of falsehood which Leonardo da Vinci held to be unpardonable Improved housing does raise the general resistance of a populace to tuberculosis or any other infectious disease We know that an animal in good condition will succumb less readily to experimental infection than an animal in poor condition, but so long as we are dealing with an infectious virus there is a point at which massive or long-continued infection will overcome the resistance of the best-conditioned animal. It will always be possible for a careless consumptive to infect his family whether they be housed in a well built or an ill built house

There have recently been cases of tuberculous men, discharged from the services, dying in Poor law infirmaries, and these cases have aroused protests in the lay press Now an intelligent interest in tuberculosis even if only awakened by the thunder of a European war, is to be welcomed but to those who have been working for years to kindle that interest it has always seemed unjust that a preventable disease, such as tuberculosis, should entail the death of any man or woman soldiers broken in our industrial wars, under the Poor law When this does occur in any area it implies a certain want of provision for the treatment of tuberculosis on the part of the civil authorities Men discharged from the services return to civil life and must be considered as part of the civil community

The day is long past for controversy as to the best methods for the treatment control and eradication of tuberculosis Every local authority has had the guidance of the Departmental Committee on Tuberculosis, and has been urged to adopt a coördinated scheme in which the essential elements are the tuberculosis dispensary the open air school, the sanatorium the working colony, and the hospital for advanced cases In this the Committee endorsed the salient features of the Edinburgh system founded by Sir Robert Philip in 1887 and since adopted throughout the world. The literature on the subject is already so large that it is not necessary to burden this letter with a description of the integral parts of the machinery provided by that scheme

Certain difficulties do exist in the matter of its effective execution and some of these may be briefly stated The examination of contacts in the homes of patients the most essential part of the work of the dispensary, is often not only an arduous task, but also demands a high degree of clinical skill since it concerns the earliest diagnosis of pulmonary tuberculosis Considerable experience of general medicine is no less essential for the dispensary medical officer since he acts as a consultant with practitioners who are treating insured patients To put the matter frankly, an experienced clinician will not be attracted by a low salary Again if the tuberculosis officer is to rank as an assistant medical officer of health, and if his advancement in the Public Health Service can only be by promotion to an administrative post two contingencies are likely to arise If he has devoted many years to gain clinical acumen, not easily won his skill will be largely lost to the community on his promotion to a purely administrative post divorced from clinical work Again, if he early begins to lean towards the administrative rather than to the clinical side of his work the effective control of tuberculosis in his area will suffer in proportion

The Public Health Service in the United Kingdom admittedly the first and most efficient in the world has recently developed to so great an extent that it now covers a very large part of the field of medicine It is concerned with the feeding of infants the health of school children the treatment of the exanthemata the diagnosis of tuberculosis and to-morrow with venereal disease—all these in addition to the general problems of hygiene and sanitation It is surely just, and in the public interest, that in a service so specialised equal awards and emoluments should be the reward of clinical no less than of administrative ability This has already been carried out in the city of New York, where the heads of the various departments of the Board of Health stand on an equal basis If the machinery now in our possession for the control and eradication of tuberculosis be erected on these lines in every area and if the Public Health Service take advantage of the brilliant possibilities for extension which lie in the future the problem of tuberculosis will be solved

I am Sir, yours faithfully

August 7th 1916 HALLIDAY SUTHERLAND

THE FARADIC COIL AS AN INSTRUMENT OF PRECISION

To the Editor of THE LANCET

SIR,—I was glad to learn from Professor J N Langley's letter published in your issue of July 22nd that physiologists do not rely in their experiments on faradic coils of the ordinary type The outsider naturally draws his conclusions, however, from the occasional papers which physiologists contribute to the clinical journals and from the information given in standard text-books of physiology In Professor Langley's article in THE LANCET of July 1st the expression 'faradic currents" is used without qualification or explanation Again, taking "Halliburton" and "Howell' as standard English and American text-books respectively, one finds the usual sledge coil with vibrating hammer described and pictured in each, and one is left to infer that it is the current from such an instrument to which physiologists refer when they speak of "faradism."

Although I am not familiar with the writings quoted by Professor Langley and, in a later letter, by Dr E D Adrian, I am well acquainted with the views of the late Dr Lewis Jones on the subject of the measurement of electrical stimuli. After considering all the modifications and improvements of the induction coil including the use of rotatory interrupters and the electro-static voltmeter, he concludes that "the coil is bound to be superseded where exact work and the measurement of results are required " To obtain tetanising currents he recommends the galvanic current interrupted by a "Leduc's commutator ' or a rapid series of condenser discharges The "Leduc commutator' is accurate and extraordinarily flexible but difficult to handle The Lewis Jones condenser instrument as recently modified is extremely simple, and no less accurate within the range of its 15 gradations

Whatever may be the case with physiologists, it will scarcely be denied that the faradic coil generally used by clinicians in nerve testing is not an accurate instrument Professor Langley's comparison of such a coil to ' an ordinary thermometer ' calls for sharp challenge Curiously enough, in my paper on the use of condensers in THE LANCET of Feb 19th, I made use of the same analogy, but for a different purpose ' Conceive men using clinical thermometers without scales, filled sometimes with mercury and sometimes with spirit, and having varying bores of unknown dimensions Individual physicians might, and no doubt would become remarkably expert in the use of the particular instrument which they possessed, but records of their cases would be of only small value to other observers " If nerve testing as usually carried out were as exact as temperature taking with an "ordinary thermometer ' there would be no need for reform But medical coils differ in their voltage in the length of the individual impulses produced, and in the rate of discharge, to name only some of the factors which modify muscular response They thus resemble the crude imaginary thermometers of my illustration

It is not important that condensers in particular should oust the coil in diagnosis It is vital that some instrument both flexible and accurate should be employed, so that the experiments of one observer may be precisely repeated by others Only thus can data be collected which are of real value

I am, Sir, yours faithfully,

Cavendish-square W July 30th, 1916. F HERNAMAN JOHNSON

THE RECRUITING OF THE UNFIT

To the Editor of THE LANCET

SIR —A few weeks ago I called your attention to the case of a hæmophiliac being passed for the Army It is common to hear the wondering remark, "So-and so has passed the doctors!' In many cases the wonder is pardonable The case of a man leaving our local sanatorium and having a brief flutter of military glory is still tickling the popular fancy A case, whom I certified to be suffering from phthisis, had a "beautiful soldier's funeral" a few months ago not many yards from here. The growing scandal of passing the medically unfit into the Army has caught the public eye in a more dramatic style than the medical press could be expected to adopt but why leave this serious matter to a popular weekly paper? The examining doctors receive hundreds of stupid and trivial medical certificates,

which meet with the contempt they deserve On the other hand, there are some certificates which require more attention—viz, those relating to tuberculosis stricture, epilepsy, hæmophilia, duodenal ulcer middle ear disease, specific cerebral disease, and so on Such cases should be rejected, unless it can be shown that there is nothing the matter with them—that is to say, that the medical certificate is wrong

Most of the insurance companies have this question on their proposals "Have you ever had any illness or accident?" I have not yet found a soldier to whom such a question has been put

I am, Sir, yours faithfully,

ROBERT TURNER, M.D, F R C S

Bootle Liverpool, July 31st 1916.

TREATMENT OF CARRIERS OF AMŒBIC DYSENTERY

To the Editor of THE LANCET

SIR,—For the oral administration of emetine we have in "Alcresta" ipecacuanha another form of the drug which possibly may not be generally known It consists of the alkaloids of ipecacuanha mixed with clay Each tablet contains 0 15 grain of emetine, and it is stated that as many as 20 tablets can be taken without unpleasant effects I have used this form of emetine at Liverpool for some time and in doses of 5 or even 10 tablets a day—that is, 1½ grains of emetine I have only exceptionally noted any unpleasant effects The therapeutic action on E histolytica cysts is so far as my experience at present goes, distinctly encouraging

I am, Sir, yours faithfully,

J W W STEPHENS,

Sir Alfred Jones Professor of Tropical Medicine The University, Liverpool

August 3rd 1916

IMMOBILITY AFTER JOINT INJURY

To the Editor of THE LANCET.

SIR,—While agreeing with many of the points raised by Sir John Collie in his article under this heading in THE LANCET of August 5th may I take exception to what, after all, forms the thesis of his paper, the statement that "immobilisation of a joint is inevitably followed by adhesions"? As an earnest disciple of Mr H O Thomas and one who believed that the battle waged by him against the professional pundits of his time had been long ago permanently settled in his favour, I am filled with dismay that a physician of such learning and authority as Sir John Collie should hold such retrograde views The early movements he recommends produce far worse results than the prolonged fixation he deplores.

Will you, Sir, allow me space to state briefly the principles which guide surgeons in the treatment of these cases?

1 A joint the subject of recent injury is a joint suffering from inflammation

2. Such a joint must be kept immobilised in the ideal position until the inflammation has entirely subsided In some cases this will only take a few days, in others, weeks or even months will be required While immobilised the skin over the joint is to be daily stroked and the joints distal and proximal to it put through their full range of movement (Lucas-Championnière)

3 After all signs of inflammation have gone the patient is to be gradually allowed to use the limb, he is not to be hurried, he is to be encouraged to take his time over it All forcible passive movement is contra indicated

4 Keeping the joint immobilised in this manner does not cause adhesions or stiffness. In *elderly* subjects who have passed their prime there is a likelihood of stiffness following injury to a joint especially in the joints above and below it The best way to prevent this is to treat the case in the manner described above, but its prevention or cure cannot be guaranteed

5 Stiffness remaining in joints after injury is usually due to too much early movement before the inflammation set up by the injury has subsided, it is rarely due to insufficient movement

I trust that others will join in publicly denying that immobilisation of a joint is inevitably followed by adhesions

I am Sir yours faithfully

PAUL BERNARD ROTH, F R C S

Bude, Cornwall August 7th 1916

THE "SEDATIVE POOL BATH"

To the Editor of THE LANCET

SIR,—I venture to think that one of the most important of Major Tait McKenzie's statements in his paper at the Section of Surgery in the Royal Society of Medicine on the Use of Physical Remedies for Convalescent Soldiers relates to his use of the pool bath at a temperature of 94° F It has long been known to hydrologists that baths of this kind increase the force of the heart's action and diminish its frequency, that they have no thermal effect either plus or minus, that they substitute for a multitude of varying peripheral impressions one unchanging massive impression, and that they are markedly sedative to the nerve centres The sedative action is more pronounced when the duration of the bath is increased, which can be safely and pleasantly done to two, four, and more hours and even days and weeks It seems permissible to call pool baths of this description "sedative," as they are *not stimulant* in the sense that hot and cold baths are stimulant although they have, it is true, certain *stimulating qualities* All suitable cases however, are marked by one form or another of neuro-vascular irritability—rapid heart (whether functional or partly organic), high arterial tension, nervous and mental depression, restlessness and insomnia many cases of "shock," neuritis and neuralgia A similar form of bath may be used with the best results in acute septicæmia and save limbs as well as lives

Major McKenzie's bath is the first of its kind in England—but I hope it will not be the last It is pleasant to the patient, absolutely safe and its action rests upon a firm physiological basis It was put before the Army medical authorities early in the present year and the "sedative pool" forms the central part of the "model bath installation for hospitals" described and figured in the *Journal of the Royal Army Medical Corps* for May 1916 I trust that the example of Heaton Park will be widely followed, and the results in due time communicated to the profession

I am, Sir yours faithfully,

R FORTESCUE FOX

August 8th 1916

EARLY ETHER ANALGESIA

To the Editor of THE LANCET

SIR —With reference to Dr D P D Wilkie's communication to THE LANCET on July 15th last, it may be of interest to say that his method has been used by me for the last 15 years, but using chloroform instead of ether, and his account accurately relates my experience except on one occasion when trying to remove a toe-nail I failed probably diverted by the shout of the patient he described For setting a fracture, removing splints or painful dressings or any operation requiring under two minutes it was quite efficient and successful, the point being as Dr Wilkie emphasises to apply a considerable quantity straight away I never measured the quantity, but I always saturated the lint on the Schimmelbusch mask with chloroform It must be remembered that the primary analgesia diminishes or ceases at the end of two minutes, and is a sort of surprise from which consciousness of pain recovers before permanently succumbing

I may state in addition when giving chloroform for tooth extraction, even if the patient appears partially conscious a few drops administered after the operation removes all memory that may have existed

I am Sir, yours faithfully

H A FLIS

Middlesbrough August 7th 1916

RAILWAY TRAVELLING IN INDIA IN THE HOT WEATHER

To the Editor of THE LANCET

SIR —In reference to the leading article in THE LANCET of July 29th may I point out certain considerations that possibly influenced the authorities in India in ordering the movement of troops from Karachi up country that resulted in such a lamentable loss of life?

1 The selection of Karachi as the port of disembarkation instead of Bombay may have been due to the fact that the length of the railway journey to Lahore from the latter port is 1233 miles and from Karachi 820 miles Presumably the

troops would be sent to some hill station at any rate they would almost certainly be quartered in the Punjab or near the North West Frontier If they were designed for Baluchistan, of course there could be no question as to Karachi being the port of disembarkation

2 The troops having arrived at Karachi where possibly there was no sufficient, or suitable accommodation available their removal up country was a necessity, they could not be put under canvas at this season, and they had to be moved on

3 As to the question of day or night travelling of course night travelling at this season is less trying but there is not very much to choose between them

4 There appears to have been some relative overcrowding 30 men in carriages for 36 This was wrong and no satisfactory reason for the deficiency is obvious, presumably the railway authorities were made acquainted beforehand with the number to be accommodated

5 Many men appear to have left their carriages and to have stood bare-headed in the sun This should not have been allowed but it would have been a matter of some difficulty to prevent it absolutely with inexperienced troops The alternative that men should have been forbidden to leave their carriages when the train was at a halt, for watering the engine or other reason, is absurd and unthinkable Except for the scanty accommodation, every provision appears to have been made hospital carriages for casualties, a coffee shop and a good supply of ice which was moreover available at various stations in ample quantity Three medical officers also were detailed for the care of the draft—a very liberal allowance The number of casualties is much to be regretted and unless either there was no suitable accommodation for these troops near Bombay or else their presence was required up country their transport by train would seem to have been as inadvisable as it was contrary to usual practice The officer in command was however, as fully aware of this as any of his critics and until his explanation is made known we are not justified in assuming that he was to blame. Presumably he acted on medical advice

I am Sir yours faithfully

August 3rd 1916 A. M D

THE WORK OF THE REGISTERED HOSPITALS FOR THE INSANE

To the Editor of THE LANCET

SIR —Dr Henry Rayner's dissertation on 'A Serious Defect in Some of the Registered Hospitals for the Insane' in THE LANCET of July 29th, is an elaboration of some remarks which appeared in the July number of the *Journal of Mental Science* in a review of the report of the Board of Control Dr Rayner is wrong in supposing that registered hospitals were primarily *founded* "for the charitable assistance of persons of the educated class suffering from mental disorder They were primarily founded in deference to a widely prevalent opinion that the principle of a speculation for private profit applied to the care of the insane is in itself objectionable Founders of registered hospitals proposed to afford to persons in easy circumstances better accommodation and better *treatment* for which they will be charged something less than at private asylums It is obvious that if all profits were applied to the improvement and development of the hospital this object of the founders was likely to be accomplished Dr Rayner says that it has been accomplished He says that the admirable and successful management of these institutions is vouched for and that it would be difficult to praise too highly the medical treatment of the patients committed to their care The second not the primary purpose of the founders of hospitals was to *provide* accommodation for persons of the same social class as the former but of moderate means at low rates proportional to their means" It was recognised that persons of this class are usually kept at home when first attacked without adequate care and treatment and with the too frequent result consequent on the neglect of the early and curable stages of the malady of being condemned to a hopeless and incurable insanity" Hospitals made and make provision for these patients I can speak for the practice in one hospital and I have reason to believe that it prevails in all of them Each application for admission at a rate of payment below the usual minimal charge is carefully considered by the committee Certain conditions prescribed in the regulations and based on the intention of the founders must obtain 1. The patient must belong to the social class for whom the hospital is intended The wisdom of this provision is apparent when it is remembered that the classification of patients, after admission is based entirely on their mental condition Discordant social elements would make this impossible 2 The patient's illness must be recent in origin and presumably one which will yield to treatment This condition is intended to encourage the early treatment of cases and to guard against crowding the hospital with patients for whom only supervision, not treatment is required

In the hospital with which I am most familiar 58 applications for payment at rates below the minimum charge were considered in the last three years Of these 45 were granted and 13 were refused as not coming within the prescribed conditions This would seem to show that the committee have availed themselves of the opportunities they have had of giving financial assistance to those for whom it is one of the purposes of the hospital to make provision If effect were given to Dr Rayner's suggestion that a lower rate of expenditure should be adopted with consequent depreciation in the quality of the accommodation and of the services offered no doubt hospitals would be removed from 'rivalry with other institutions" But surely it is unreasonable to suggest that committees of hospitals out of consideration for 'other institutions' should halt in their efforts to maintain the hospitals in the highest possible state of efficiency for thus would they deprive patients "in easy circumstances' and those of moderate means' of those conditions for their care and treatment which the founders of the hospitals desired to secure for them

I am Sir, yours faithfully

MEDICAL SUPERINTENDENT OF A REGISTERED HOSPITAL

August 5th 1916

Medical News.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND —At a meeting of Comitia of the Royal College of Physicians and of the Council of the Royal College of Surgeons on July 27th diplomas of L R C P and M.R C S were *conferred upon the following* candidates (including 11 ladies) who have passed the Final Examination in Medicine, Surgery and Midwifery of the Conjoint Board and have complied with the respective by laws —

Willoughby Agar B A. Oxon Oxford and Birmingham Universities Girdhar Clement Agarwala, London Hospital Abdul Majid Ahmad B A Cantab. Cambridge University and *Guy's Hospital* Edward Beric Alabaster Birmingham University Mary Clare Albuquerque, Royal Free Hospital Frank *Macdonald Allchin* Westminster Hospital Douglas Harris Anthony St Mary's Hospital Robert Aspinall Atkins Guy's Hospital Keyser Atkin B A Cantab Cambridge and Manchester Universities Thomas Burton Bailey Cambridge University and St Bartholomew's Hospital Gideon Albertyn Beyers St Bartholomew's Hospital William Howard Blackburn B A. Cantab Cambridge University and St Bartholomew's Hospital Charles Eric Bond, B.A Cantab Cambridge University and University College Hospital Edward George Paul Bousfield St Bartholomew's Hospital Clifford Viney Bainbridge, B A Cantab Cambridge University and St Bartholomew's Hospital Harold George Broadbridge London Hospital James Brooks Manchester University William Wallace King Brown St Thomas's Hospital Leslie James Forman Bull, St. Bartholomew's Hospital Gordon Ernest Burton B A. Cantab Cambridge University and St Bartholomew's Hospital Caro Philip Leslie Carrier Charing Cross Hospital Percival David *Hartopp* Chapman B.A Cantab Cambridge University and Guy's Hospital Philip Nield Cook, *St Bartholomew's Hospital* Mervyn Clement Cooper London Hospital Joseph Monias Courtney St Mary's Hospital *François Crinsoz de Cottens* M.D Geneva Ph D Zurich Zürich, Geneva and Middlesex Hospital Frederick Graham Leslie *Dawson* and Frank Philip Gilbert de Smidt London Hospital William Robinson Dickinson St Bartholomew's Hospital James Maitland Downie, B A. Cantab Cambridge and Glasgow Universities Gerald Grafton Drum *Lond* S Thomas's Hospital William Hood Dyer L.D S Eng London and Middlesex Hospitals James Daniel Dyson Middlesex Hospital William Cochrane Cairnie Easton M B Ch.B Vict. Manchester University Hector Eugene Ekanayake L.M S Ceylon Ceylon and Middlesex Hospital Daniel Davies Evans Cambridge University and St Bartholomew's Hospital Tom Stenner Evans Cardiff and St Mary's Hospital Henry Walter Fearnehorne B A Cantab Cambridge and Birmingham Universities Frederick O'Toff Fehrsen London Hospital Justin Beauclerc Flamer-Caldera L.M S Ceylon Ceylon and St Bartholomew's Hospital William Rashall Gabriel Middlesex Hospital John Jones Gasperine Edinburgh University and St Bartholomew's Hospital Ernest Thomas Gepey Brussels and University College *Hospital* Leslie Somerville Gatheygood B A Cantab Cambridge University and Guy's Hospital Edwin

Augustus Green Cambridge University and London Hospital Theodore Hamnet Gunewardene Ceylon and King's College Hospital Hilda Mary Halliday Royal Free Hospital Melville St Clair Hamilton Charing Cross and St Thomas's Hospital Cecil Cantilupe Harrison B A Cantab Cambridge University and St Mary's Hospital Newcome Herbert Harrison L D S Eng Charing Cross Hospital Arnold Guy Harsant London Hospital Egerton Henry Valpy Hensley B A Cantab Cambridge University and St Thomas's Hospital Rupert Bannatyne Hick St. Mary's Hospital Mary Isabella Hounsfield Royal Free Hospital John Basil Hume St Bartholomew's Hospital George Gerald Jack L D S Eng Middlesex Hospital Frank Bernard Jago Manchester University Elizabeth Ethel Jenkins Sheffield University and Royal Free Hospital Arthur Richard Jennings L S A Cambridge University and St Bartholomew's Hospital Bernard Ellery Jerwood B A Cantab Cambridge University and Guy's Hospital Theodorus Joekes Leiden and St Bartholomew's Hospital; John Robert John, Cardiff and Charing Cross Hospital Llewellyn Price Johns King's College Hospital Samuel Henry Mannings Johns B A Cantab Cambridge University and St. Thomas's Hospital Walter Hewitt Jones Cambridge University and St Mary's Hospital Theo Rosser Fred Kerby Birmingham University George Edwin Kidman Guy's Hospital Paul Eustat Ellis Kirby University College Hospital Newton Morgan Lewis Cardiff and Westminster Hospital Louisa Margaret Lister Bristol University Katharine Lloyd Royal Free Hospital Arcot Doraiswamy Loganadan L M S Madras Madras and London Hospital Douglas Loughlin University College Hospital Hugh Montagu Cameron Macaulay B Sc Lond St Bartholomew's Hospital George Cecil Mathie, Birmingham University Geoffrey Lamb Maule B A Cantab Cambridge and Manchester Universities Arthur Alfonce Miller M D Heidelberg Heidelberg University Ernest Cecil de Mallet Morgan Guy's Hospital John James Murphy London Hospital Robert Leech Nowell, Manchester University Edward Newton and Frederick Parry Nicholas, B A Cantab Cambridge University and St George's Hospital John Dudgeon Oliver M B B Ch B A O Dublin Dublin University and Middlesex Hospital Alice O Reilly L M S Calcutta Calcutta Medical College and Birmingham University John Alexander Percival Perera, Ceylon Medical College and London Hospital Victo Jorge Eduardo Canuto del Sacramento Perez y Marzan University College Hospital Edwin Seymour Phillips, Guy's Hospital John William Glanmor Phillips St Mary's Hospital Robert Louis Portway and Richard Harold Cotter Pyn, Guy's Hospital Lakshminarayanapuram Subramanier Ramier, M B B S Madras Madras University John Sturges Ranson Westminster Hospital Sydney Devenish Rhind St. George's Hospital Trefor Hughes Rhys Cardiff and Charing Cross Hospital, Eveleen Blanche Gibson Rivington Royal Free Hospital William Richard Rowlands Liverpool University Bishambhar Sahai Calcutta and Charing Cross Hospital Ephraim Sakoschansky Westminster Hospital Edward Ebenezer Samaraweera Ceylon and King's College Hospital Enid Eleanor Sanger Davies Royal Free Hospital William Henry Sarra London Hospital John Adrian Dudley Skinner B A Cantab Cambridge University and St Thomas's Hospital Arthur Cloudesley Smith Birmingham University Norman Armitage Sprott B A M B, Ch B Oxon Oxford University and St Thomas's Hospital Lily Dorothea Taylor Glyde Pullip Tatton London Hospital Ismail Tewfik Cairo and Guy's Hospital Royal Free Hospital Ralph Robert Robert Ockleston Townend London Hospital Traill B A Cantab Cambridge University and Guy's Hospital William John Vance Guy's Hospital Paul Marie Joseph Van Gehuchten Louvain and London Hospital Herbert Stewart Wacher Guy's Hospital Phillis Emily Webb Royal Free Hospital Harry Mortimer Wharry Oxford University and St. Bartholomew's Hospital Richard Cuthbert Percival Whitcombe Cambridge University and St Thomas's Hospital Arthur Gerald Phillips Willis B A. Cantab, Cambridge University and St Thomas's Hospital Thomas Wilson Manchester University William Edwin Wilson St Bartholomew's Hospital Robert Arnold Woodhouse B A Cantab., Cambridge University and St Mary's Hospital and Leiba Zeitline Paris and University College Hospital

Diplomas in Public Health were also conferred upon the following three candidates —

Reginald St. George Smalbridge Bond M B C M F R C S Edin Fleet Surgeon R N, Edinburgh University and University College Ethel Mary Minett, M B B S Lond London School of Medicine for Women and University College and Henry Owen West M D, B S Lond M R C P L M S S A. King's College

At the First Professional Examination of the Examining Board in England, held from July 18th to 22nd, the following candidates were approved in the undermentioned subjects —

Chemistry and Physics —Harry Barlow Liverpool University Ivy Constance Beach and Margaret Gladys Best London School of Medicine for Women William George Thomas Bennett Birkbeck College Francis Blackham special study Israel Blain Manchester University Mary Burfield London School of Medicine for Women George Frederic Burdell King's College Kenneth Entwisle Bury St. Thomas's Hospital Edouard Jean Joseph Buyck King's College Louis Ely Reginald Carroll St Bartholomew's Hospital Marion Constance Vera Clarke London School of Medicine for Women Leslie Barrett Cole Leighton Park School, Reading Beatrice Lakeman Collins Royal Albert Memorial College Exeter Reginald Norman Downing London Hospital Robert George Eastwood and William Cyril Elson Leeds University Reginald Vaughan Facey St. Mary's Hospital Warnakula Wurasuriya Joseph Fernando Middlesex Hospital John Hurndall Gann Birkbeck College Thomas John Ernest Gittins Technical School Dudley Harold Vernon Jessop Birmingham University Agnes Knowles London School of Medicine for Women Francis Knoyle B.A. Birkbeck College Henry Davies Llewellyn Cardiff Richard Alger McCabe Middlesex Hospital James Aird Morton St. Bartholomew's Hospital Guillermo Bustillo Oliva, Liverpool University Daniel Joseph O Meara, Guy's Hospital Kenneth Owen Parsons Bristol Grammar School Edwin Harold Rampling St Thomas's Hospital William Sleeman Roberts St Mary's Hospital Geoffrey Waring Robinson King's College Edith Marjorie Rooke London School of Medicine for Women Edward Savage Cardiff Margaret Charlotte Serase London School of Medicine for Women Ronald Cunliffe Shaw and Joseph Aloysius Sherry Manchester University Frederic Dawning Spencer Birmingham University William Stephenson Durham University Maxwell Hamilton Summers Royal Dental Hospital Annie Dorothea Symons London School of Medicine for Women Edgar James Targett and Leslie James Timings Birmingham University and Catherine Mabel Williams and Greta Isabel Yeoman London School of Medicine for Women

Chemistry —Douglas Robert Ainsworth Manchester University Montague Hirch Bulrski London Hospital Leslie Charles Frederick Oberens St. Thomas's Hospital Harold Spencer Davies Cardiff Edgar Thomas Flood St Mary's Hospital John Frederick Charles McColl Liverpool University Colin Campbell Mackinnon Middlesex Hospital Oswald Edgar John McOustra University College Mary Colegrave Prideaux London School of Medicine for Women Gerald Richmond Anderson de Montjoie Rudolf King's College Doris Kathleen Shuttleworth Leeds University and Sidney Bertrand Winnick London Hospital

Physics —Charles Spencer Anderson St Mary's Hospital George Frederick Baxter King's College William Laing Dunlop Liverpool University Maxwell Hall Guy's Hospital Reginald Rowley Halsall Manchester University; Richard Owen Jones, Liverpool University John Dougan Kelson London Hospital; Talaat Ibrahim Makar and Ali Khan Muzaffar Agha, King's College Edmund Philbin Manchester University Constance Elizabeth Marian Ridout, University College and Mohamed Sidky Middlesex Hospital

Biology —Hawa Khairul Nisa Attaoullah London School of Medicine for Women William Henry Bradfield Exeter University College Montague Hirch Bulrski London Hospital George Frederick Burnell King's College Leslie Barrett Cole Leighton Park School Reading Beatrice Lakeman Collins Royal Albert Memorial College Exeter Alan Raymond Cox Municipal Technical College Brighton Dorothy Alice Denman Cropper Cambridge University Robert George Eastwood Leeds University Mohammed Nour Eldin, St. Bartholomew's Hospital William Cyril Elson Leeds University Reginald Vaughan Facey St Mary's Hospital Beatrix Helen Fairbanks Birmingham University Edith Muriel Field Birkbeck College Mabel Purefoy FitzGerald Edinburgh James Hassall France Battersea Polytechnic Frederick Richard Hall St Thomas's Hospital Reginald Rowley Halsall Manchester University John Percival Helliwell L D S Eng Birkbeck College Harry Hirst M.Sc. Manchester University Aziz Yousif Ibrahim Beirut and King's College Harold Vernon Jessop Birmingham University John Haslam Johnston M Sc. King's College Albert Roby Jones Liverpool University James Trevelyan Jones Cardiff Richard Owen Jones Liverpool University Richard Alger McCabe Middlesex Hospital; John Frederick Charles McColl, Liverpool University Edgar Duncan Macmillan St Bartholomew's Hospital Guillermo Bustillo Oliva Liverpool University William Parry-Jones London Hospital Kenneth Owen Parsons Bristol Grammar School Herbert Alfred Potter Middlesex Hospital Norah Katherine Priestley London School of Medicine for Women Stanley Owens Prior Birmingham University; Edwin Harold Rampling St Thomas's Hospital Johannes Jacobus Heldinghuys University College Geoffrey Waring Robinson King's College, Edward Savage Cardiff Jacob Seidenfreund London Hospital Doris Kathleen Shuttleworth Leeds University Mary Agnes Elizabeth Somers Bristol University Frederic Dawning Spencer Birmingham University William Stephenson Durham University Annie Dorothea Symons London School of Medicine for Women John Christopher Twomey Liverpool University John George Walker, Battersea Polytechnic Evelyn Mary Lane Waller London School of Medicine for Women Tudor Williams Cardiff Eric Frank Wilson and John Edward Wright L D S Eng Guy's Hospital Alfred Ernest Young L D S Eng London Hospital Bristol University and Charles Florance Young London Hospital

MEDICAL OFFICER TO ELEPHANT ISLAND RELIEF EXPEDITION —Temporary Surgeon G N Martin R N, who has been appointed by the Admiralty Surgeon to the *Discovery* which is being fitted out by the Admiralty for the relief of Sir Ernest Shackleton's fellow explorers stranded on Elephant Island, has already had some exciting experiences in the Royal Navy He was on H M S *Cressy* when she was torpedoed early in the war and was rescued after being two and a half hours in the sea He has since served in the *Emperor of India* and has been employed on board a monitor on patrol service

"INCAPABLE OF WORK"—A medical man recently in giving a certificate to an insured patient to secure for him sickness benefit qualified the words of the certificate Form Med 40, by adding 'unfit not incapable" It was the medical man's opinion that in the ordinary meaning of the word the patient was not "incapable" of doing work but was 'unfit" to do it The medical man classed the patient clearly as a person in such physical condition that according to the intention of the Insurance Act he ought to receive the benefit provided but in the interest of accuracy in a certificate he desired not to describe him as "incapable" The Friendly Society to which the insured person belonged declined to grant benefit upon a certificate in which the wording prescribed by the Commissioners for the use of the medical practitioner was qualified and the matter was referred to the Insurance Commissioners by the London and Counties Medical Protection Society, of which the practitioner is a member By this society the necessity of strict accuracy in medical certificates was dwelt upon in a letter to the Commissioners and it was pointed out that in a large proportion of the cases certified under the Act the patients are in is

unfit for, rather than incapable of, work The reply of the Commissioners to the London and Counties Medical Protection Society gives a view of the situation which is quite interesting They state that in any case in which the patient is in a condition which would make it wrong, both in the interests of his own health and in the interests of his Approved Society, for him to go to work the doctor may, and indeed ought, in the opinion of the Commissioners, give a certificate of incapacity in the wording of Form Med. 40 The London and Counties Medical Protection Society has thus secured a definite statement from the Insurance Commissioners of the interpretation which they put upon the certificate and this should enable any medical man to use it with a clear conscience

LONDON INTERCOLLEGIATE SCHOLARSHIPS BOARD — The following Scholarships and Exhibitions have been awarded — University College Bucknill Scholarship (divided) M D Cadman, Newport Grammar School, and H A. Harris, Cardiff University College equal, Two Exhibitions 1st (divided) M D Cadman Newport Grammar School, and H A Harris Cardiff University College, equal, 2nd, H G Goldwater, Rhodes University College Grahamstown S A. King's College Warneford Scholarships R H Yelf, Rossall School, C E Bacon Alleyn's School Dulwich J N Morris, Rhodes University College Grahamstown, S A. Westminster Hospital Medical School Arts Scholarship L J Soutter, Heathfield House School, Crouch End N King's College Hospital Medical School Arts Scholarship N C Scott, Alleyn's School, Dulwich, Science Scholarship A. G Dobrashian University College London (Royal Free Hospital) School of Medicine St Dunstan's Exhibition E M K Salmond St Paul's Girls' School, Brook Green W, Isabel Thorne Scholarship O J Flecker Dean Close School Cheltenham, Mabel Sharman Crawford Scholarship M H S Auden, St Hilda's College, Cheltenham *proxime accessit*, P M Phillips London (Royal Free Hospital) School of Medicine for Women.

ROYAL MEDICAL BENEVOLENT FUND —The following is a summary of the cases recently relieved —

Widow aged 53 of M B Aberd who practised in London and died in 1915 Husband was addicted to drugs and left his wife and family totally unprovided for The four children, all of whom are single do what they can to support the home but cannot provide sufficient Voted £5 —Widow aged 69 of M.R.C S Eng who practised at Battersea and died in 1895. Applicant had managed to get along until a few months ago when it was necessary for her toe to be operated upon. The result was doctor's bills and extra help was required in her home Wants a little temporary relief. Voted £5.—Widow aged 53 of L R C P & S Edin who practised at Blackpool and died in 1912. Husband was a bankrupt at his death and the applicant was left entirely destitute. She obtained furniture on the hire system and started a boarding house at Bognor This has not been a success owing to the expensive food and the debt on the furniture. Voted £5.—Widow aged 42, of M.R.C S Eng who practised in London and died last month after a long illness during which all his savings were exhausted and friends had to help towards the end Applicant is now living at the expense of friends who cannot afford to keep her and her two children aged 13 and 8 years Voted £5 — Widow aged 57 of M.B F.R C S Edin who practised at Edinburgh and died in 1915 Applicant could manage but a large house left her by her husband is unlet, and there are certain charges to be met. She worked as a caretaker for some months but the work was only temporary Has three children ages 3 to 7 and is much concerned about the education of her boy aged 7 Voted £5.—An M R.C S Eng aged 72, who practised in Northants now completely incapacitated by paralysis Only income 19s 6d a week allowed by children and a capital sum of £90 Three sons all have joined the Army in South Africa. Two are married and are unable to help Three daughters two of whom live at home and the one working pays 13s 6d. per week the other looks after her father Voted £18 in 12 instalments —Daughter aged 64 of registered practitioner who lived in London and died in 1889 Applicant has for a number of years lived in France and earned a living as a governess When the war broke out she was working at Royo and lost all her belongings She sheltered and saved at great risk to herself ten English soldiers and the Prime Minister made her a grant of £50 from the Royal Bounty Fund. She also received a letter of thanks from Lord Kitchener Only able to earn a little now by giving occasional French lessons to soldiers at Rouen Would like to get into a convent or home in England Voted £12 in 12 instalments — Widow aged 70 of M R.C S Eng who practised at Heathfield Left totally unprovided for and is a cripple and lives in a home for incurables Only income £20 derived from a Post Office annuity supplemented by a friend Relieved eight times £80 last £12 in June. Voted £12 in 12 instalments —M D Aberd. married aged 63 who practised at Walsall, is suffering from incurable paralysis Income £70 per annum from other charities Has three children, ages 5 to 18 years. The eldest just commenced to earn a little Relieved eight times £73, last £12 in June 1915 Voted £12 in 12 instalments — Widow aged 53, of L.R.C P Edin., who practised at Newquay and died in 1893. At husband's death was left with two sons now in the Navy and who allow her 10s per week Has very bad health and fractured her leg two years ago and still finds it difficult to get about. Relieved 13 times £125 last £12 in June 1915 Voted £12 in 12 instalments.—Daughters, aged 43 and 45 of M R C.S Eng who practised in London and died in 1892. Left entirely without means and tried to earn a living by taking in boarders at a seaside resort in Cornwall, but since the war have not been successful. Helped by the Fund and Guild four times. £37 last £10 in July 1915. Voted £10 —Widow aged 67 of L S A Lond. who practised at Ipswich and died in 1901 Was left unprovided for with five children four of whom are now married the youngest being an apprentice and earning very little Has tried to earn a living by taking in lodgers but has only one at present. Relieved 13 times £140 last £12 in June 1910 Voted £12 in 12 instalments.—Daughter aged 60 of L.R C P Edin who practised at Holloway and died in 1884 Was left without means a chronic invalid and only income a pension of £40 per annum from another charity all of which is required to pay for food and medicine Relieved 12 times £103 last £12 in July 1915 Voted £12 in 12 instalments.—Widow aged 67 of M D Glasg who practised at Dennistoun and died in 1876 Was left unprovided for and tried to conduct a boarding house but had to give up owing to ill health Only income a pension from another society of £12. Is now living with a married daughter whose husband is a private in the Army Recommended by the Glasgow Branch of the Guild Relieved nine times £95 last £12 in July 1915 Voted £12 in 12 instalments —Widow aged 71 of M D St Andr who practised in London and died in 1915 Left unprovided for after husband's long illness There are three children but they are only able to help very little Has recently received a pension of £40 from another society Relieved twice £14 last £12 in July 1915 Voted £12 in 12 instalments —Widow aged 53 of M.B Aberd who practised at Watlington and died in 1912 Left unprovided for and suffering from neuritis, and health thoroughly undermined through long nursing of husband, and children now dead Relieved once £10 Voted £12 in 12 instalments —Widow aged 51 of L.R C P & S Edin who practised in Jamaica and died in 1893 Left without means and suffering from an incurable disease Income £26 per annum from a society for helping incurables Has one daughter aged 26 who is also an invalid. Relieved eight times £95 last £12 in July 1915 Voted £12 in 12 instalments —Daughter aged 53 of M R C S Eng who practised in London and died in 1885. Health very bad in consequence of the long nursing of her mother Income only £45 per annum. Wants a little help to enable her to take a short holiday Relieved twice £10 last £5 in July, 1915 Voted £5 —Widow aged 82, of M R.C S Eng who practised at Leeds and died in 1909 Applicant is a chronic invalid the daughter who was ill for many years has recently died. Only income about £30 per annum The Guild are much interested in this case and would like the Fund to supplement their efforts a little so as to enable the old lady to be properly looked after Relieved once £12. Voted £12.—Daughter aged 61 of L R C P Glasg who practised at Mauchline and died in 1883 Applicant who is very delicate was left quite unprovided for She is unable to work, and her only income is a pension of £12 from another charity Relieved nine times, £102 last £12 in June 1915 Voted 12 in 12 instalments —Daughter aged 45 of M.D Dub who practised in the Isle of Man and died in 1882. Applicant is a chronic invalid and is suffering from rheumatoid arthritis Only income a little from friends. Voted £5 in November last per the Liverpool Branch of the Guild with leave to apply again The Liverpool Branch strongly support this case. Voted £5 — Widow aged 54 of L.R C S Irel. who practised in Liverpool and died in 1904 Applicant was left entirely without means, her husband having spent all her savings and ill treated her There is one son but he has not helped his mother for years The applicant has been trying to struggle on by getting day work but recently had a stroke and her health is very uncertain. Voted £3 to be paid through a lady who is taking an interest in her The case to come up again in October —L.R.C.P & S Edin aged 61 who practised at Leith Married Is suffering from locomotor ataxy and confined to bed since 1913 Has no means His wife's income only £40 per annum. Relieved twice £35 Voted £18 in 12 instalments —Daughter aged 65 of L R C S Irel. who practised at Derby and died in 1890 Father left a large family totally unprovided for Applicant has tried to earn a living by taking in lodgers but owing to ill health has had to give it up A room provided by a sister but she cannot afford to keep her Only income £5 a year from a friend Relieved seven times £84 Voted £12 in 12 instalments —Widow aged 65, of M.D St Andrews who practised at Stepney and died in 1903 Was left unprovided for with four children all married and none able to help Has tried to earn a living by letting rooms but owing to ill health unable to give proper attention to lodgers. Relieved 13 times £156 Voted £12 in 12 instalments —Daughter aged 61 of M D Edin who practised in London and died in 1889 Ill health and age prevent her from obtaining permanent work, and only earns about £10 per annum by needlework. Relieved eight times £61 Voted £12 in 12 instalments

THE MEDICAL EDUCATION OF WOMEN —The Edinburgh University Court has received from Miss S E S Mair, chairman of the Edinburgh Hospital for Women and Children and Mrs A M Chalmers Watson, M D, an offer to pay £4000 within a year to defray the cost of undertakings intended to facilitate the medical education of women The offer is made on behalf of women medical graduates, students, and their friends

ILLEGAL TRAFFIC IN COCAINE —At Marlborough street police court on Tuesday last four women and a man were convicted of illegal trafficking in cocaine Mr Herbert Mushett, who prosecuted on behalf of the Commissioner of Police, stated that in consequence of the Order in Council dated July 28th, the authorities were no longer trammelled by having to prove the sale of cocaine in the case of soldiers Sergeant Gilbert Smith, of the Canadian Military Police and various detective sergeants gave evidence for the prosecution Mr Denman sentenced three of the women—Fawdon Brady, and Meehan—to three months' imprisonment with hard labour and the fourth—Middleton—to two months' imprisonment with hard labour and a fine of £5 In the case of the male defendant Johnson, it was stated that he had been convicted at Canterbury of a similar offence and sentenced to six months imprisonment, and that he had not long left gaol The stipendiary sentenced him now to six months imprisonment with hard labour with an additional fine of £100 The magistrate added that while some consideration might be felt for the wretched women who had been used as catspaws in this illegal traffic, the sentence on the man Johnson was a richly deserved one

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS

Reports of Certifying Surgeons

The Royal Assent has been given to the Police, Factories, &c. (Miscellaneous Provisions) Act, which contains a clause abolishing the reports of certifying surgeons, except in certain cases

HOUSE OF COMMONS

WEDNESDAY, AUGUST 2ND

Venereal Diseases and National Insurance

Mr RENDALL asked the representative of the National Insurance Commissioners what action the Government proposed to take on the resolution passed by the National Insurance Acts Committee to the effect that permanent disablement and serious illness, greatly injuring the State, were being caused by reason of the fact that insured persons suffering from venereal diseases were refused sickness benefit and medical attention under the National Insurance Act —Mr C ROBERTS replied I would refer the honourable Member to previous replies on this subject I should like to point out that he is mistaken in supposing that persons suffering from venereal diseases are refused medical attention under the National Insurance Act Section 14 (4) of the Act of 1911 precludes an insured person from being deprived of medical benefit on that ground

Examining Medical Officers to War Office

Mr TOUCHE asked the Financial Secretary to the War Office whether civil practitioners who were appointed examining medical officers and had been so occupied under strain for a long period were entitled to a holiday, and, if so, if any and what difference in pay and holiday leave there was between practitioners engaged on a whole time or permanent basis and others whose duties were partial and temporary although remunerated at a fixed daily rate —Mr FORSTER (in a written answer) replied Yes, a holiday might be arranged if the work would be carried on in their absence I am not aware that there is any difference such as that mentioned in the second part of the question, but perhaps my honourable friend would let me know more precisely to what different classes of practitioners he refers

Mr TOUCHE asked why, when civil practitioners who were appointed examining medical officers were allowed 40s a day for a full day's work and lesser amounts for part of a day, there were practitioners in London doing duty from 9 30 to 5 who were still receiving only 24s a day, being the same rate of pay as that formerly allowed to them when they were doing only four hours daily, and would he take steps to secure more equitable treatment —Mr FORSTER wrote in reply The rate of 40s is a maximum, the actual payments depending upon the number of recruits examined The 24s rate is for a period of regular employment It covers whole time service It is not proposed to make any change

THURSDAY, AUGUST 3RD

Industrial Poisoning

Mr ANDERSON asked the Under Secretary for the Home Department (1) whether there had been a considerable increase in the number of cases of poisoning and of anthrax and toxic jaundice reported to him under the Factory and Workshop Act for the six months ending June, 1916, as compared with the same period of the previous year, whether the number of deaths was 30 as compared with 18 of the same six months of 1915, whether he could state to what this increase was due and how far it was attributable to relaxed factory inspection, and what action if any, he proposed to take and (2) whether the number of anthrax cases had increased from 29 in the six months ending June, 1915, to 53 in the six months ending June, 1916 and what steps were being taken in this matter —Mr BRACE replied The figures for lead poisoning for the periods in question show a slight decrease but there has unfortunately been a considerable increase in cases of anthrax There has been no slackening of inspection for the purpose of enforcing the regulations and the increase can only, I am advised, be accounted for by the fact that owing to the heavy demand manufacturers have been forced to use all kinds of material The problem of prevention is being thoroughly investigated by the Departmental Committee for the purpose and there is good reason to hope that they will be able to put forward effective proposals The notification of toxic jaundice—that is jaundice due to tetrachlorethane or certain other poisonous substances used in explosive works—was made compulsory for the first time this year, and this is the chief reason for the apparent increase in reported cases of poisoning The number of persons employed in the factories concerned has also been constantly increasing These factories have been subject to frequent inspection, and much has been done by improved mechanical ventilation, medical examination of the workers, and other precautions to minimise the danger As regards poisoning from dopes containing tetrachlorethane, this danger should very shortly be eliminated altogether by the substitution of the non poisonous dopes now being brought into use

A Russian Medical Man

Mr KING asked the Financial Secretary to the War Office whether he had considered the case of a Russian doctor of medicine, a graduate of a Swiss university, who had been serving in this war in Serbia and only left when Serbia was evacuated by the Allies why had the medical services of this doctor been refused by the War Office, would he say why he was being pressed into the ranks as a private, and whether, in view of this Russian doctor having served with our Allies, the Serbians it was intended to deport this gentleman to RUSSIA —Mr FORSTER answered With the information contained in the question I can only satisfy my honourable friend on one point It is impossible to commission medical men who are not British subjects and whose degrees are not registrable in this country If my honourable friend wants me to make an inquiry on the second point of his question he will, no doubt be good enough to furnish me with the name of the doctor in question My honourable friend has no doubt, considered whether he should not advise this Russian medical man who appears to have behaved very gallantly, to offer his services to the Russian Army through the Russian Consul General

Sanitation at Rowlston

Mr HUME WILLIAMS asked the Financial Secretary to the War Office whether he was aware that since November 1914 repeated representations had been made both to the Local Government Board and to the military authorities by the local sanitary authorities and the East Riding county council as to the nuisance caused by the sewage from the military camp at Rowlston, in the East Riding of Yorkshire, that an assurance was given to the Local Government Board by the Army Council in March, 1916, that steps would be taken to remove any further cause for complaint that notwithstanding this serious cause for complaint did exist that there was still a nuisance which was a serious menace to the health of the inhabitants of the district that one end of the field in which the camp was situated adjoined the seashore and that engineers who had inspected the site had advised that the sewage could, without serious expense be discharged into the sea and whether he would give instructions for the necessary steps to be taken to abate the nuisance and for the work to be carried out forthwith —Mr FORSTER wrote in reply The sanitary engineering officer to the War Office has already arranged to visit the locality and to report upon the alleged nuisance and I hope to receive a full report in the course of a few days This matter was brought to notice some six months ago but on inquiry it was found that at that time the arrangements made were satisfactory

Military Hospitals in London

Mr KENNEDY asked the Financial Secretary to the War Office how many hospitals were in the control of his department in London, were the surgeons and medical advisers paid by the War Office and if so whether quarterly or monthly were the nursing staff paid quarterly or monthly and were these latter payments stating same made promptly or within what time after they became due —Mr FORSTER wrote in reply The number of hospitals in the London district is 186 of which 158 are auxiliary hospitals A very large amount of the work performed in military and other hospitals in London and elsewhere is gratuitous The surgical medical and some of the other staff paid by the War Office are paid monthly in arrear and the remainder are paid weekly The rates of the nursing staff vary There is no reason to suppose that the payments are not made promptly

MONDAY, AUGUST 7TH

Medical Organisation of the Army in India

Sir HENRY CRAIK asked the Secretary for India why committees or commissions had been instituted within the last six years to inquire into the medical equipment and organisation of the Army in India what action was taken upon their reports and whether these reports would be laid before the Mesopotamian Special Commission —Mr CHAMBERLAIN replied In 1912 a committee of which Surgeon General Sloggett was chairman inquired into the system of field medical organisation and equipment of medical units of the Army in India Its recommendations were approved by the Government of India, and are now in force The station hospital system for Indian troops was the subject of inquiry by another committee Its recommendations were under discussion when the war broke out, and as they related solely to peace arrangements

their further consideration has been postponed The reports will be laid before the Special Commission if the Commission should call for them

Schemes for Treatment of Venereal Disease

Major ASTOR asked the Parliamentary Secretary to the Local Government Board how many councils of counties and county boroughs had submitted to the Board complete schemes for the diagnosis and treatment of venereal diseases how many of these schemes had been approved by the Board, and how many were already in operation —Mr HAYES FISHER answered. The regulations and circular were only issued about three weeks ago and no complete scheme has yet been submitted to the Board Numerous negotiations and conferences have however already taken place, and I am glad to observe that considerable activity is being displayed by local authorities in carrying out the duties imposed on them

Jaundice due to Dope.

Answering Mr ROWLANDS, Mr BRACE (Under Secretary to the Home Department) said I am pleased to be able to say that not only has there been a considerable decrease recently in the number of cases of jaundice due to dope but that satisfactory dopes which are free from tetrachlorethane are now available in sufficient quantity, and that the War Office and Admiralty have directed their contractors to use only the approved dopes of this kind It may be taken, therefore that the danger from tetrachlorethane poisoning in this class of work has now been removed

Unregistered Dentists and Cocaine.

In reply to Commander WEDGWOOD Mr H SAMUEL (Home Secretary) said I have not seen my way to include unregistered dentists among the classes of persons authorised by the regulation to purchase cocaine I have taken steps however to make available for the use of unregistered dentists a sufficient supply of novocaine which is an efficient substitute for cocaine and is used by many dentists and as this supply is not immediately available for use in the form in which it is usually required by dentists I have granted a temporary permit which will allow unregistered dentists to continue the use of cocaine in the interval

Promotion in the Royal Army Medical Corps

Mr JOHNSON HICKS asked the Financial Secretary to the War Office whether lieutenants in the Royal Army Medical Corps had been given three years' acceleration of promotion after six months' service, but captains of 10 years' service had so far been given no acceleration, and whether having regard to the work done by the Royal Army Medical Corps captains at the front he would consider the possibility of acceleration of promotion in regard at least to some of them —Mr FORSTER replied My honourable friend is misinformed in thinking that no captains in the Royal Army Medical Corps have received accelerated promotion As a matter of fact 145 captains have received such promotion, and each of them had between 10 and 12 years' service The acceleration of promotion given to lieutenants does not in fact amount to as much as three years I am informed that in the majority of cases it has amounted to less than 12 months

TUESDAY, AUGUST 8TH

Nerve shaken Soldiers

Commander WEDGWOOD asked the Financial Secretary to the War Office whether he would indicate which classes of nerve shaken soldiers it was now proposed to discharge from the Army direct to pauper asylums since the War Office had admitted that 198 had been discharged who did not belong to any of the three categories indicated last September and some of these had had very short treatment and up to the time of discharge had been described in medical reports as uncertifiable and progressing towards recovery —Mr FORSTER wrote in reply The following cases are certified (1) cases of general paralysis of the insane (2) chronic epileptics (3) incurable cases and cases in which there is previous history of insanity

Rubber Gloves for Military Nurses

Major Sir CHARLES HUNTER asked the Financial Secretary to the War Office whether the medical authorities at the War Office would take steps to provide rubber gloves for the nurses who did dressings in the military hospitals at home in order to prevent cases of septic poisoning —Mr FORSTER replied Every demand made by medical officers for rubber gloves for the use of nurses in military hospitals has been met. If the honourable and gallant Member has had brought to his notice any case where such gloves are not available all that is necessary is for those responsible to make an indent

Hairmyres Sanatorium

Mr MACCALLUM SCOTT asked the Secretary for Scotland whether any progress had been made in the efforts to secure the release of labour for the completion of the construction work of the Hairmyres Sanatorium at which the Middle Ward Committee of the Lanarkshire county council had pledged itself to afford accommodation for discharged tuberculous soldiers and to train them for outdoor occupation —Mr TENNANT said in reply Yes, sir I am glad to be able to inform my honourable friend that the answer is in the affirmative, and it is anticipated that the number will shortly be increased

Illicit Traffic in Cocaine in India

In reply to Sir H ROBERTS, Mr CHAMBERLAIN (Secretary for India) wrote Illicit traffic in cocaine continues to be a source of grave anxiety both to the Government of India and myself and stringent regulations on the subject have been framed I cannot within the limits of a reply give these in detail, but I may say generally that imports are prohibited except under licence that private possession is punishable, and that sale to private persons by chemists and druggists is permitted only for medical purposes on the prescription of a qualified medical practitioner The drug however, lends itself to smuggling by seamen and others in ways which defeat the best conceived regulations

WEDNESDAY, AUGUST 9TH

Sanitary and Medical Arrangements in Mesopotamia

Sir JOHN JARDINE asked the Secretary of State for War (1) whether he could give an assurance that the river craft used for conveying troops up and down the River Tigris and the River Euphrates had proper appliances for securing that the drinking water should be uncontaminated and not dangerous to health, and (2) whether he was now able to assure the House that sufficient supplies of drugs medicines, bandages, and other medical appliances had reached the troops at Basra, and in the stations on the lines of the Tigris and Euphrates —Mr LLOYD GEORGE said in reply My honourable friend asks me for two assurances but he will, I am sure have taken into account that since the War Office assumed the additional responsibilities with which I dealt in the speech I made on July 20th no sufficient time has elapsed for an appreciable change to have been effected in the situation as a direct result of the change of responsibility Subject to its being understood that the Army Council do not claim that all has yet been done which should be done and will be done I may inform him that, on all new boats ordered in the United Kingdom, arrangements for securing adequate proper drinking water have been made. Filtration barges are being sent and supply tanks on various points in the river will be provided As regards the vessels already on the spot, I am informed that an installation for sterilising water recommended by the Director of Medical Services and the late Sir Victor Horsley, has already been provided on many ships and will be fitted to the remainder Two tanks holding 40 gallons for cooling purposes have also been added on each vessel A large number of hospital river steamers and barges have also been ordered As regards drugs, medicines bandages and other medical appliances all demands have been supplied, and as the General Officer Commanding has repeatedly been told to ask for all he wants I am satisfied that sufficient supplies are now available on the spot

Appointments.

Successful applicants for vacancies Secretaries of Public Institutions and others possessing information suitable for this column are invited to forward to THE LANCET Office directed to the Sub-Editor not later than 9 o clock on the Thursday morning of each week, such information for gratuitous publication

BUATIA S L M R C S L R C P Lond has been appointed Ophthalmic House Surgeon at St Thomas s Hospital

CARLGAN O J L R C P & S Edin L F P S Glasg Certifying Surgeon under the Factory and Workshops Acts for the Ormskirk District of the county of Lancaster

HAMILTON M St C M R C S L R C P Lond Casualty Officer and Resident Anæsthetist at St Thomas s Hospital

HEIFFTON EDITH L R C P & S Edin L R F P & S Glasg Medical Officer to Munition Girls Factory Corringham Essex

McGEOCH T M D Glasg Certifying Surgeon under the Factory and Workshop Acts for the Girvan District of the county of Ayr

MORE J L R C P Lond M R C S Certifying Surgeon under the Factory and Workshops Acts for the Rothwell District of the county of Northampton

PETTY A I M B B C Cantab Certifying Surgeon under the Factory and Workshop Acts for the Longton District of the county of Lancaster

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index)
When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor

BECCLES SUFFOLK 1st CYCLIST BRIGADE FIELD AMBULANCE.—Three Medical Officer

CHARING CROSS HOSPITAL, W C —Resident Medical Officer Salary at rate of £-60 per annum with board &c

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Second House Surgeon Salary £160 per annum with board &c

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST Victoria Park E —Resident Medical Officer Salary at rate of £200 per annum with board, &c

EVELINA HOSPITAL FOR CHILDREN Southwark London, S E — House Physician Salary at rate of £160 per annum with board &c

GREAT NORTHERN CENTRAL HOSPITAL, Holloway London N — House Physician for six months Salary at rate of £100 per annum, with board &c

GUILDFORD ROYAL SURREY COUNTY HOSPITAL.—House Surgeon.

HOSPITAL OF ST JOHN AND ST ELIZABETH, 40, Grove End-road N W — Resident Medical Officer unmarried for six months Salary at rate of £250 per annum with board, &c

HUDDERSFIELD COUNTY BOROUGH —Assistant School Medical Officer Salary £300 per annum

LEEDS PUBLIC DISPENSARY —Female Resident Medical Officer Salary £200 with board &c.

LEEDS PUBLIC HEALTH DEPARTMENT —Female Medical Assistant for Maternity and Child Welfare Work Salary £350 per annum

MACCLESFIELD GENERAL INFIRMARY —Resident House Surgeon Salary £180 with board &c

MAIDSTONE WEST KENT GENERAL HOSPITAL —Junior House Surgeon Salary £125 per annum with board, &c

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN Park place, Cheetham Hill road —Female House Surgeon Salary £120 per annum with board &c

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST Northwood Middlesex —Resident Medical Officer Salary £120 per annum with board &c

NORTHAMPTON COUNTY BOROUGH.—School Medical Officer and Assistant Medical Officer of Health Salary £350 per annum rising to £400

NOTTS COUNTY COUNCIL.—Resident Medical Officer at the Ransom Sanatorium Sherwood Forest, Mansfield. Salary £250 per annum with board &c

QUEEN CHARLOTTE'S LYING-IN HOSPITAL Marylebone-road N W — District Resident Medical Officer for four months Salary at rate of £60 per annum with board &c

QUEEN'S HOSPITAL FOR CHILDREN, Hackney road, Bethnal Green E — Temporary Assistant Physician Also Temporary Assistant Surgeon Salary £25 per annum to cover travelling expenses

ST GEORGE'S HOSPITAL.—Resident Anæsthetist Salary at rate of £100 per annum

SHEFFIELD CHILDREN'S HOSPITAL Western Bank.—House Surgeon Salary £180 per annum with board &c

SHEFFIELD JESSOP HOSPITAL FOR WOMEN —Junior Female House Surgeon unmarried, for Gynæcological and Maternity Departments Salary £160 per annum with board &c

SOUTH LONDON HOSPITAL FOR WOMEN South Side Clapham Common S W —House Physician also House Surgeon for six months Salaries at rate of £100 per annum with board, &c Also Temporary Anæsthetists Honorarium 10s 6d per attendance

SUNDERLAND THE ROYAL INFIRMARY CHILDREN'S HOSPITAL —Female Resident Medical Officer for six months Salary £100 per annum with board &c

TUNBRIDGE WELLS GENERAL HOSPITAL.—House Surgeon unmarried Salary £250 per annum with board &c

WILLESDEN URBAN DISTRICT COUNCIL HEALTH DEPARTMENT — Temporary Assistant Medical Officer Salary £3 3s per week

WINCHESTER ROYAL HANTS COUNTY HOSPITAL.—Female Assistant to Resident Medical Officer Salary £100 per annum with board &c

Births, Marriages, and Deaths.

BIRTHS

BOLUS —On July 28th, at Carlton road Weymouth the wife of Captain P R Bolus, M D R A M C of a son

GRAY —On July 31st at Yew Tree Cottage West Malling the wife of Henry Gray M B C S of a daughter

GRIFFITH —On July 31st, at Cavendish road St John's-wood N W to Helena and Harold Kinder Griffith F R C S (Captain R A M C T) a son

McDONALD —On July 31st at Warrington-crescent Maida Vale N W to the wife of Lieutenant Colonel J H McDonald I M S —a daughter

MARRIAGES

LOOSELY—WILLIAMS —On August 2nd at the Hampstead Parish Church Alfred E A. Loosely, F R C S M A Oxon, to Belinda Veronica third daughter of the late Robert Williams and of Mrs Williams of Wellingborough

DEATHS

JALLAND.—In proud and loving memory of Lieutenant Stephen Jalland 6th East Yorks Regiment who was killed in action at Chocolate Hill Gallipoli on August 9th 1915 two days after the Suvla Bay landing

ROBERTS —On August 2nd at Bath Elias Jones Roberts M B Lond M R C S E late District Medical Officer East Indian Railway Asansol India aged 94 years

SMALE —On August 4th Morton Alfred Smale M R C S L D S aged 69 years

WHOLEY —On August 4th at Handcombe Lodge Perensey after a long and painful illness Thomas Wholey M B the dearly loved husband of Agnes E Wholey aged 57 years

N B —A fee of 5s is charged for the Insertion of Notices of Births Marriages and Deaths

Notes, Short Comments, and Answers to Correspondents.

STUDENTS' NUMBER OF THE LANCET

INFORMATION intended for the Students' Number of THE LANCET must be sent WITHOUT DELAY, addressed to the Sub Editor, and marked on the envelope "Students Number Only"

SUN AND ELECTRIC LIGHT BATHS FOR PULMONARY TUBERCULOSIS

Dr W Holmboe's annual report of Mesnalien Sanatorium in Norway for the year 1915 (*Tidsskrift f d Norske Laegeforening* Christiania, 1916, xxxvi 555) gives an account of the satisfactory progress made in the treatment of pulmonary tuberculosis by sun baths and electric light baths From February to November most of the patients took sun baths for up to 4½ hours a day even when the temperature of the air was as low as 14° F In no case was there any untoward result, in all instances the patients felt very much the better for the treatment, which was an excellent palliative in even the most advanced cases In January and December at Mesnalien the sun is too low for sun bathing Its place was taken by electric light bathing, 50 volt arc lamps are used (Dr Holmboe does not state the ampèrage) at a distance of half a metre from the patient's skin the exposures lasting up to two hours a days, though they would be longer if the electric supply were better The immediate results of the electric light baths on the patients are identical with those of the sun baths, and leave nothing to be desired, the skin becomes bronzed or even chocolate coloured, and the patients feel vastly better Sufficient experience has not yet been gained for any decision as to the effect of the electric light treatment on the pulmonary disease to be reached During the year 115 patients were treated, artificial pneumothorax treatment was continued in 3 cases and attempted in 9 more, but failed in 3 of the 9 In one instance it was employed with success to stop a violent hæmoptysis Extrapleural thoracoplastic operations were performed in 6 cases in which artificial pneumothorax treatment had failed partially or completely on account of pleural adhesions In 3 patients the results of operation were completely satisfactory 1 remains unfit for work, 1 died of marasmus some months later, and 1 died of pneumonia very soon after the operation Dr Holmboe emphasises the importance of performing any such operations at a time when the patient is still relatively well and the general condition is still fairly good

TATTIES

To the Editor of THE LANCET

SIR,—In reading the report of the sufferings from the heat of troops in transit in India recently I saw that ice and "tatties are provided The expression is also in your columns What are "tatties"? The word is not in my dictionary I am, Sir, yours faithfully

London, July 31st, 1916 CALORIE

*** The larger dictionaries define the word briefly "The Oriental Interpreter" a work published many years ago, describes tatties as follows —

Tatties—screens made of the roots of *khus khus* a long grass which abounds in most of the jungles in India and which corresponds exactly with Guinea grass The fibres are of a rusty brown colour devious in their direction and may be from 10 to 20 inches in length The frame in which this material is enclosed to form a screen is made of split bamboo chequered into squares of about 4 inches each way and in the whole sufficiently extensive to overlap the exterior of the door or window to which it is applied at least 6 inches or perhaps a foot at the sides and above The *khus khus* is then placed very regularly on the bamboo frame as it lies on the ground in the same manner as tiles each layer being bound down under a thin slip of bamboo extending the full breadth of the tatty The grass art is to make the tatty neither too thick which would exclude the wind nor too thin as it would then let the dust pass through without rendering the interior sufficiently cool In the Western Provinces and other parts of India tatties are frequently made of a short prickly bush that thrives during the hottest months on sandy plain especially in places inundated during the rainy season This shrub is called *jerusseah* its leaves are not unlike but not so numerous nor of so deep a green as those of rue It is extremely prickly being everywhere furnished with spines about the size of a pin The Europeans in India employ a *bheesty* or water-carrier to saturate the tatties with water for their fragrance is then most powerfully elicited and the wind passing through them becomes cool and discharged of the particles of dust it gathers on its course across the plains —ED L.

AT an inquest held at Fulham on August 5th a verdict of Manslaughter was returned against a music teacher practising hydropathy who had been attending a case of rheumatism which ended fatally

THE SPELLING OF CINCHONA

To the Editor of THE LANCET

SIR —Many years ago I find that Sir R Clements Markham, F R S, pleaded that this word should be spelt correctly as 'chinchona," but common usage adhered to "cinchona" It was named from the Countess of Chinchon Now the countess's name itself is corrupted by some modern lexicographers into "Cinchona," in order to tally with the corrupted botanical name The cause of the confusion seems to be clearly explained in the following account which I have partly translated from Spanish from a South American source and amplified from other sources The Count of Chinchon, Don Luis Fernandez de Cabrera, was Spanish Viceroy of Peru (1629-1639), and his wife Donna Ana de Ossorio (1576-1639), is celebrated as propagating the use of cinchona bark (she was cured of fever by it at Lima) When she returned to Spain she made known its qualities and Cardinal de Lugo carried it to Rome where it was called Lugo's powder and also "the Countess's powder," but the Italians wished to give it the name of the countess Then arose a difficulty, as Chinchona in Italian pronunciation would be kinkona, but "cin" would be pronounced chin as in Spanish (and English) This gave in Italian the correct pronunciation of the first syllable but, of course, an erroneous spelling Chinchon is a town in Spain 25 miles from Madrid Sir Clements Markham explored Peru in the fifties" and in 1860 introduced cinchona culture from South America (where it began to be neglected) into India, which assured the regular supply

Several dictionaries note with comment the deviation in the spelling, but I have not before seen an explanation of its cause I am Sir, yours faithfully,

London, August 4th, 1916 W

COMMUNICATIONS not noticed in our present issue will receive attention in our next

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c

POST GRADUATE COLLEGE West London Hospital Hammersmith road W

MONDAY —2 P.M., Medical and Surgical Clinics X Rays Mr Gray Operations Mr B Harman: Diseases of the Eye Dr Simson: Diseases of Women.

TUESDAY —2 P.M. Medical and Surgical Clinics X Rays Mr Baldwin: Operations Dr Banks Davis: Diseases of the Throat Nose and Ear Dr Pernet: Diseases of the Skin.

WEDNESDAY —10 A.M. Dr Saunders: Diseases of Children Dr Banks Davis: Operations of the Throat, Nose and Ear 2 P M Medical and Surgical Clinics X Rays Mr Pardoe Operations Dr Simson Diseases of Women.

THURSDAY —2 P.M. Medical and Surgical Clinics X Rays Mr Gray: Operations Mr B Harman: Diseases of the Eye.

FRIDAY —10 A M Dr Simson: Gynæcological Operations 2 P.M. Medical and Surgical Clinics X Rays Mr Baldwin: Operations Dr Banks Davis: Diseases of the Throat, Nose and Ear Dr Pernet: Diseases of the Skin

SATURDAY —10 A.M. Dr Saunders: Diseases of Children Dr Banks Davis: Operations of the Throat, Nose and Ear Mr B Harman Eye Operations 2 P M. Medical and Surgical Clinics X Rays Mr Pardoe: Operations

NORTH EAST LONDON POST-GRADUATE COLLEGE Prince of Wales's General Hospital Tottenham N

MONDAY —Clinics:—10.30 A.M. Surgical Out-patients (Mr B Gillespie) 2.30 P.M Medical Out-patients (Dr T R Whipham): Gynæcological Out-patients (Dr Banister) 3 P.M. Medical In patients (Dr R. M Leslie)

TUESDAY —2.30 P.M Surgical Operations (Mr Carson) Clinics:—Medical Out patients (Dr A. G Auld) Surgical Out patients (Mr Howell Evans) Nose Throat and Ear Out-patients (Mr C H Hayton) Radiography (Dr Metcalfe) 3.30 P.M. Medical In patients (Dr A J Whiting)

WEDNESDAY —Clinics:—2.30 P M. Throat Operations (Mr C H Hayton) Children Out-patients (Dr T R. Whipham) Eye Out-patients (Mr R. P Brooks); Skin Out patients (Dr H W Barber) 3.30 P.M Eye Operations (Mr R. P Brooks)

THURSDAY —2.30 P.M Gynæcological Operations (Dr A. B Giles) Clinics:—Medical Out patients (Dr A. J Whiting) Surgical Out patients (Mr Carson) Radiography (Dr Metcalfe) 3 P.M. Medical In patients (Dr R M Leslie)

FRIDAY —2.30 P M. Surgical Operations (Mr Howell Evans) Clinics:—Medical Out patients (Dr A. G Auld) Surgical Out patients (Mr R. Gillespie) Eye Out patients (Mr R. P Brooks)

THE THROAT HOSPITAL, Golden square W

MONDAY —5.15 P M Special Demonstration of Selected Cases

THURSDAY —5 15 P M Clinical Lecture

The following magazines, journals &c, have been received —American Medicine Aberdeen University Review British Journal of Dental Science Wes London Medical Journal Lat rsia e Medical Journal Psycho-analytic Review Homœopathic Recorder Quarterly Journal of Medicine Indian Ambulance Gazet e Medical Review Quarterly Journal of Experimental Physiology St Bartholomew's Hospital Journal Archives de Médecine et de Pharmacie Militaires Annales de l Institut Pasteur Edinburgh Medical Journal

EDITORIAL NOTICES

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff It is urgently necessary that attention should be given to this notice

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office

Lectures, original articles, and reports should be written on one side of the paper only, *and when accompanied by blocks it is requested that the name of the author, and if possible of the article, should be written on the blocks to facilitate identification*

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication

We cannot prescribe or recommend practitioners

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub Editor"

Letters relating to the publication, sale and advertising departments of THE LANCET should be addressed "To the Manager

We cannot undertake to return MSS not used

MANAGER'S NOTICES

THE INDEX AND TITLE-PAGE TO THE LANCET

January to June, 1916

IN view of the Government restrictions upon the supply of paper, and the shortage of paper quite apart from these restrictions, the Index and the Title-page to the volume of THE LANCET which was completed with the issue of June 24th have been printed separately, and copies have been supplied gratis to those subscribers who have, up to August 10th intimated to us their wish to receive them Other subscribers will be similarly supplied, so long as the stock remains unexhausted, on application to the Manager THE LANCET Office, 423, Strand, London W C Such application should please be sent in at once, direct to the Manager and not through Agents

Volumes and Cases

VOLUMES for the first half of the year 1916 are now ready Bound in cloth, gilt lettered, price 16s carriage extra

Cases for binding the half year's numbers are also ready Cloth, gilt lettered, price 2s, by post 2s 4d

To be obtained on application to the Manager, accompanied by remittance

TO SUBSCRIBERS

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423 Strand London W C, are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c, should be sent to the Agent to whom the subscription is paid, and not to THE LANCET Offices

Subscribers by sending their subscriptions direct to THE LANCET Offices will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Friday mails to all parts of the world

TO COLONIAL AND FOREIGN SUBSCRIBERS

Subscribers abroad are particularly requested to note the rates of subscriptions given on page 4

The Manager will be pleased to forward copies direct from the Offices to places abroad at the rates shown, whatever be the weight of any of the copies so supplied

NEWSPAPERS FOR NEUTRAL COUNTRIES

Newspapers are not at present being sent forward to neutral European countries unless posted direct from the office of publishers or newsagents who have obtained permission from the War Office for this purpose The Publisher of THE LANCET has obtained the required permission and he will forward copies direct from the Office to any neutral country on receipt of instructions

BOOKS, ETC., RECEIVED

ROUTLEDGE, GEORGE AND SONS London DUTTON E P AND CO New York
An Emperor's Madness or National Aberration? By Professor Ernesto Lugaro (Modena) Translated by W N Robinson M D Price 2s 6d net.

SAUNDERS, W B COMPANY London
Studies in Ethics for Nurses By Charlotte A Aikens formerly Superintendent of Columbia Hospital, Pittsburg Price 7s 6d net

WOOD WILLIAM AND CO., New York
Proceedings of the Charaka Club Vol. IV

WRIGHT, JOHN AND SONS Bristol
The British Journal of Surgery Vol III Price 30s net.

YEAR BOOK PUBLISHERS, Chicago
General Surgery Vol II (edited by J B Murphy A.M M D F R C S &c) of the Practical Medicine Series Price $2 00

METEOROLOGICAL READINGS

(Taken daily at 8.30 a.m. by Steward's Instruments)

THE LANCET Office August 9th 1916.

Date	Barometer reduced to Sea Level and 32° F	Direction of Wind	Rainfall.	Solar Radiation Vacuo	Maximum Temp. Shade	Min Temp.	Wet Bulb.	Dry Bulb	Remarks
Aug 3	30 330	N		126	83	63	61	68	Fine
4	30 266	N E		108	73	62	61	67	Cloudy
5	30 350	N E	..	119	77	55	54	59	Cloudy
6	30·2 0	W		100	70	55	60	65	Cloudy
7	30 250	S E.		114	72	54	52	55	Overcast
8	30·274	N E		110	71	54	54	58	Overcast
9	30 150	S E		124	82	58	61	64	Fine

Communications, Letters, &c., have been received from—

A.—Dr O Atkey Wad Medani; Mr G F Aldous Plymouth; Dr D E Anklesaria Ahmedabad Mr F Aldridge, Lond Anglo-French Drug Co, Lond Aberdeen University Secretary of Dr T D Acland Lond Mr T L Ashforth Doncaster A W T Admiralty Medical Department, Director General of

B.—Mr B Byaack Khetri Messrs Boulton and Paul Norwich Messrs Butterworth and Co., Lond; Lieutenant Norman Bradly R.A M C Bedford County Hospital Bedford Secretary of Messrs C Birchall Liverpool Dr H W Bruce Lond Mrs H Barnes Chippenham Bristol Royal Infirmary, Secretary of Dr J Lint n Bogle, Atherstone Mr. George Brown Callington Messrs J Ballantyne and Son Paisley Bombay Bacteriological Laboratory. Assistant Librarian of Messrs. John Bell Hills, and Lucas Lond Belfast Corporation. Chief Tuberculosis Officer of Dr J Blomfield Lond. Bristol University Registrar of Dr F E Batten Lond Dr A. G Bateman Lond. Messrs Burroughs Wellcome and Co Lond, Messrs John Bale Sons and Danielsson Lond.

C—Dr Cortezo Madrid Caterham Sanitarium Proprietor of Messrs Cassell and Co Lond Coventry and Warwickshire Hospital Coventry Secretary of Messrs E Cook and Co, Lond Captain S W Coffin R A M C Mrs Cole Wilford Major W S Crosthwait, R.A.M C Chesterfield Hospital Secretary of Dr A. Caddy Calcutta Captain J G Cooke, R.A.M C Walsall Calcutta Medical Club Hon Librarian of; College of Preceptors Lond., Secretary of Dr C Clarke Rotherham Mr Wm Clements Dublin Messrs J Crosfield and Sons Warrington Mr G W Clark, Lond.; Captain W Campbell R A.M C Dr W F Croll Aberdeen Messrs J and A Churchill Lond

D—Dr Elgar Down Plymouth Dr k Das Calcutta Messrs W Dawson and Sons Lond Mr T Dixon, Lond Captain O De Muth, R.A.M C Derby County Asylum Mickleover Clerk to the

F—Lieutenant C J Fernandes I M S Dr R Fortescue Fox Lond. Dr W L Fletcher Lond

G—Dr A P Ghatak Arrah Lieutenant S B Gadgil I M S Gas Lighting Improvement Co Lond Rabbi P Gerber Lond Dr Norman Gray Newmarket Mr E W Hey Groves Clifton Lieutenant Colonel J W Grant I M S Grant College Medical Society Bombay Hon Secretaries of Glasgow Royal Infirmary Secretary of

H.—Dr W B Haddad Cairo Messrs. Hilton and Co Calcutta Lieutenant E A. W Hall I M S Calcutta Mr Frederick L Hoffman Newark N J Dr Matthew Hay Bridge of Don Dr John Haddon Denholm Dr Arthur J Hall Sheffield Mr B Whitchurch Howell Farnham Huddersfield Corporation Medical Officer of Health of Messrs A Heywood and Son, Manchester Major L. T Rose Hutchinson I M S Major F W Higgs R.A.M C (T) Captain J F Hill R A.M C Home Office Assistant Under-Secretary of State Lond Captain W G Howarth R.A.M C (T)

I.—Messrs Idris and Co Lond.

J—Jessop Hospital for Women Sheffield Secretary of

K—Mr H Kimpton Lond Professor J Kynoch, Dundee Mr Denis Kennedy Dublin Dr T N Kelynack Lond King Edward VII Hospital, Cardiff Secretary of Dr J R Kerr

L.—Lister Institute of Preventive Medicine Lond. Director of Local Government Board Lond Dr Claude Lillingston Peppard Common London Intercollegiate Scholarship Board Secretary of Messrs E and S Livingstone Edinburgh Messrs. Lee and Martin Birmingham Leeds Public Dispensary Secretary of Messrs H K Lewis and Co Lond Professor Harvey Little John Edinburgh Leeds City Medical Officer of Health of Dr T M Legge Lond

M.—Mr A G Mackenzie Lond. Medical Society of County of Kings Brooklyn Librarian of Dr J McEvoy Belfast; Surgeon J McFarlane R N Lond Dr C R P Mitchell Malvern Surgeon A E Malone R N Lond; Mrs Michell Ventnor Dr D D Malpas Boscombe Mrs B Monk Lond. Messrs. C Mitchell and Co Lond Mr Richard Hayes McCartney New York Messrs Menzies and Co Glasgow Mr M. B Machar Mirpur Sakro Macclesfield General Infirmary Secretary of Manchester Victoria Memorial Jewish Hospital Secretary of Miss F C Mackay Alntree Maltine Manufacturing Co Lond Miss Ida Meller Lond. Mr D B Master Bombay Miss E M Morris Oxford Dr J A Murray Lond Messrs Mather and Crowther Lond

N—Norwich Sanatorium Conn U S A Superintendent of Notts County Council Nottingham County Medical Officer of Nottingham Corporation Town Clerk of Surgeon R. P Nimnis, R.N Lond National Food Reform Association Lond

O—Dr Matthew D O Connell Harrogate

P—Dr S G Papadopoulos Lond Polish Information Committee Lond. Mr J J Pickles Leeds Dr R. Perriz, Valencia Preston Royal Infirmary Secretary of; Colonel J G Pilcher Lond. Messrs Parke Davis and Co Lond Lieutenant Colonel D N Parakh I M.S Major W M Power R A M C

R—Dr A. Routh Lond. Messrs Robertson and Scott, Edinburgh Royal Institute of Public Health Lond Acting Secretary of Mr Paul B Roth Lond Dr William J Ryan Utica, N Y Royal Surrey County Hospital Guildford Secretary of Dr J H Rhodes Lond Royal Victoria Infirmary Medical Library Librarian of Reigate Borough Town Clerk of Royal Dental Hospital Lond Dean of Royal Hampshire County Hospital Winchester Secretary of

S—Dr J G Soutar Gloucester Surgeon Halliday Sutherland, R.N St. Thomas's Hospital Medical School Lond Secretary of Sheffield Children's Hospital Secretary of Mr M Schaerer Lond Dr G E Shuttleworth Bournemouth Dr G Arbour Stephens Swansea Messrs G Street and Co Lond Surgeon General Georgetown, Messrs Spiers and Pond Lond.

T—Mr W Turner Lond.; Messrs W Thacker and Co Lond. Messrs J Timpson and Co Lond Dr J M Twentyman Saltfleetby Mr A. Thorne Southend-on Sea Dr H Neville Taylor Ebbw Vale Dr F W Tunnicliffe Lond.; Dr C R A Thacker Cambridge Dr Kenneth Taylor Rio Orangis Mr L. L. Thain Ewyas Harold Tunbridge Wells General Hospital Secretary of

U—University College Dublin President of University College Hospital Medical School Lond. Secretary of

V—V

W—Dr A J Whiting Lond. Mr E S Weymouth Lond. Messrs W J Wilcox and Co. Lond Captain Adam White R.A M C (T) Mr J A. Wilson Lond.; Mr C H Wallis Lond. Mr John Walker Pinxton Dr E W Wood Mason Leamington West Kent General Hospital Maidstone Secretary of Messrs Wm Whiteley Lond Mr R L Wason Midsomer Norton West End Advertising Agency Lond

Letters, each with enclosure, are also acknowledged from—

A.—Messrs Allen and Hanburys Lond Mr E Arnold Lond Mr E D Atwell Sheffield Aymard Patent Milk Sterilizer Co Ipswich A J R

B—Dr Dudley Buxton Lond Captain C Banks R A M C Mr E F Brodie Wickham Market Lieutenant E G Barker R.A.M C Bromley Corporation Accountant to the Burnley Guardians Treasurer to the Bolton Infirmary Secretary of Bury Infirmary Secretary of Mr J F Briscoe Southampton

C—Miss H Coomber Lond. Sir W J Collins K C V O Lond. Messrs Cox and Co Bombay Messrs T Christy and Co Lond. Croix Rouge Française Lond Secretary of The Church Army Lond

D—Messrs Down Bros Lond. Dr H H Davies Brighton Dr W T Dougal Pittenweem Dr M Dockrell Lond. Dalrymple House Bickmansworth

E.—Mr T Edwards Manchester Mr F Evans Pellutach Dr G L Eastes Lond

G—Greenwich Borough Lond Medical Officer of Health to the Mr H S Gettings Wakefield; Dr S Gill Formby Messrs Godwin and Co Winchester Mr H Bellamy Gardner Lond Captain Graham R A.M C Messrs C Griffin and Co Lond

H.—Mr H S Harris Luton; Dr H L Haynes Brentwood Haylock Lodge Newton-le-Willows Secretary of; H P M Major A J Hall R A M C Mr F M Harvey Lond

I.—The I L High Class Cigarette Manufacturing Co Lond

J—Mr W H Jallan York

K—Messrs Knight Frank and Rutley Lond Dr L. M Khoury Wad Medani

L—Mr W E Latham Ashton in Makerfield Dr O Leyton Lond Liverpool Guardians Clerk to the Dr D Lynch Lincoln.

M.—Mrs G Myers Birmingham Mr A R McGregor Honiton Dr F Masschelein Cardiff Middlesbrough Corporation Treasurer to the Dr H H Mac William Liverpool

N—Dr K Nath Simla Nes Mental Nurses Co operation Lond Secretary of

P—Dr E B Preat, New Cumnock Captain J Parkinson R A.M C

R—Dr M J Ryan Crumlin Rochester and Chatham Printing Co Secretary of Messrs Rutley Son and Vine Lond

S—Mr W B Saw Lond Messrs W H Smith and Son Lond.; Mr R J L Sladen Jhansi Mr F W Sears Lond Lieutenant Colonel Sunder I M.S Bankipore Captain J W C Stubbs R A M C Sheffield Royal Hospital Secretary of Sanitary Wood Wool Co Lond. Dr E F Syrett Dovercourt Dr A H Smith Tarm-on-Tees Messrs Squire and Sons Lond.

T—Messrs O Tuckey and Co Lond

W—Mr W A Wiltshire Belgate Dr M G L Walker Crosshills Mr A Wilson Lond Mrs Worthington Lond Messrs Wilcox Jozeau and Co Lond Dr W H O Woods Swansea Messrs Villars Francis and Thompson Lond War Victims Relief Committee Lond Secretary of Warrington Asylum Oxford Medical Superintendent of W H S

Y—Yost Typewriter Co Lond. Dr I Young Lond.

ABSTRACTS OF

Harben Lectures

ON

RIVERS AS SOURCES OF WATER SUPPLY

Delivered before the Royal Institute of Public Health

By A C HOUSTON, M B, C M Edin, D Sc,
DIRECTOR OF WATER EXAMINATIONS METROPOLITAN WATER BOARD

LECTURE I

The lecturer introduced the subject of his lectures in the following words —' I make no apology for confining my remarks, almost exclusively to the particular river concerning which my ignorance is least The river in question occupies a unique place in history, its beauties cannot be surpassed and it is the main source of water supply to the greatest city in the world I refer, of course to the River Thames "

The River Thames

Slides were shown in illustration of the topography and geology of the Thames basin, and of the natural flow of the Thames over a 30 year period The flow was shown to be highest in February and lowest in September The intimate relation existing between the rainfall river flow and inverted barometric pressure was then considered

A 20 year period (1891–1910) was then taken and the flow compared month by month with the rainfall It was then shown that the heaviest rainfall was in October and the biggest flow of the river in February Departures from the normal both as regards flow and rainfall, were dealt with and explanations were given of the lag ' of the river behind the rainfall

The ' surface or immediate effects of rainfall were next considered and the first section concluded with evidence that curves representing the flow and temperature of the river show an inverse parallelism Twelve lantern slides were shown in illustration of the points dealt with

In the second section the chemical and bacteriological results at Pangbourne Datchet and Hampton were carefully compared and the conclusion was reached that there was no serious difference in the hygienic quality of the river Thames at these three points It was then pointed out that assuming this to be correct the greater availability of water in the lower reaches when the river is low but relatively pure might in itself turn the scale against the choice of the river intakes The lecturer explained that excepting Staines all the intakes' of the Water Board were situated in the neighbourhood of Hampton and this was the site of collection of raw river water samples for analysis Four lantern slides were shown to illustrate the various points raised in this section

Yearly Result for 1906–13

In the third section the average yearly results as regards rainfall flow and chemical and bacteriological records over the eight-year period 1906–13 were dealt with at some length Next the variations in the individual years were considered It was pointed out that a wet year is almost necessarily a year of heavy flow of river unless there is some peculiarity in the seasonal distribution of the rainfall and a year of heavy flow is apt to be a bad quality year as judged at all events by some of the tests Usually the curves representing the rainfall flow permanganate turbidity and colour tests are in fair agreement but the ammoniacal nitrogen albuminoid nitrogen chlorine and oxidised nitrogen curves differ markedly from the flow curve The bacteriological results are sometimes in agreement with the flow and sometimes the reverse

The lecturer explained that the apparent discrepancies are due probably to the fact that the yearly flow is influenced not only by the total fall of rain in the year but by its seasonal distribution and periodicity and by the lag ' of the river Similarly the quality curves are influenced not only by the average flow throughout the year but by the manner for example in which the floods occur It was pointed out that the relation between quality and flow is best judged on a half yearly, quarterly, or monthly basis Six lantern slides were shown in this section

Half Yearly Results for 1906–14

In the fourth section, the half yearly results were considered in detail, over an eight-year period 1906–14 It was shown that there was not much difference between summer (April to September) and winter (October to March), as regards the albuminoid nitrogen test, but that the quality of the Thames was considerably worse during winter as judged by the following tests —Oxygen absorbed, turbidity colour, gelatine count, agar count bile salt agar count, and B coli test

The individual results were next dealt with and it was stated that the summer rainfall and flow of river of 1908 exceeded the winter rainfall and flow of river of 1908–09 The albuminoid nitrogen was higher in the summers of 1906 1907 1908 and 1911 than in the winters of 1906–07 1907–08 1908–09 and 1911–12 The oxygen absorbed from permanganate was higher in the summer of 1908 than in the winter of 1908–09 In all other cases the rainfall flow, albuminoid nitrogen and oxygen absorbed from permanganate results were the highest in winter The turbidity and colour readings were always highest in winter and so were the number of bacteria and B coli results

The results as a whole show conclusively that the Thames is much less impure, as judged by these tests, in summer as compared with winter The conclusion was reached that there is no tangible evidence of a progressive deterioration of the river Thames

The lecturer then proceeded to answer the question Why is the Thames apparently purer in the summer than in the winter months ? He pointed out that during the winter the floods wash all sorts of impurities into the river, as, for example from flooded sewage farms and storm sewage overflows Moreover, the velocity of the river stirs up its bed and prevents the deposition of suspended matters On the other hand in the summer much of the water in the river is derived from underground sources and is virtually stored and filtered water Again the storm water sewage overflows which in flood time discharge unpurified or imperfectly purified filthy water into the river are no longer or less often in operation Moreover many of the sewage farms may be practically dried up and the effluents may not be discharging directly into the river These effluents may indirectly reach the river lower down but only after preliminary purification and mixture with underground water Again the slow flow of the river no longer disturbs its bed, and any suspended matters in the water are constantly being deposited in the more stagnant reaches

Four lantern slides were shown in illustration of the points dealt with

Quarterly Results for 1906–13

In the fifth section the quarterly results over the period 1906–13 were considered first as averages and then in relation to the 32 quarters individually It was indicated that the autumn and winter rains appear to dominate the winter and spring flow of the river The albuminoid nitrogen curve is peculiar inasmuch as although it is at its highest in winter the spring fall is followed by a summer rise, and the lowest results are encountered in the autumn The oxygen absorbed colour and turbidity curves follow the flow curve somewhat closely The results are highest in the winter and lowest in the summer There is no very striking difference between the spring and autumn results and in this respect they differ from the flow curve which is much higher in the spring than in the autumn Having regard to the much greater volume of water in the river the spring quarter is obviously as judged by these three tests a better season for abstraction purposes than the autumn

Next the bacteriological results were dealt with and it was pointed out that they agreed well with the flow curves The results are worst in winter then in autumn next in spring and the summer quarter is the best A striking feature is that although the results are somewhat worse in autumn than in spring the flow of the river is vastly greater in the spring as compared with the autumn

Lastly the 32 quarters were dealt with individually as regards flow albuminoid nitrogen, oxygen absorbed colour turbidity bacterial counts and B coli test As regards the latter test it was indicated that the best results have

BOOKS, ETC., RECEIVED

ROUTLEDGE GEORGE, AND SONS London DUTTON E P AND Co New York
An Emperor's Madness or National Aberration By Professor Ernesto Lugaro (Modena) Translated by W N Robinson M.D Price 2s 6d net.

SAUNDERS W B COMPANY London
Studies in Ethics for Nurses By Charlotte A Aikens formerly Superintendent of Columbia Hospital Pittsburg Price 7s 6d net

WOOD WILLIAM AND Co., New York
Proceedings of the Charaka Club Vol. IV

WRIGHT JOHN AND SONS Bristol
The British Journal of Surgery Vol III Price 30s net.

YEAR BOOK PUBLISHERS, Chicago
General Surgery Vol. II (edited by J B Murphy A.M M D F R C S, &c.) of the Practical Medicine Series Price $2 00

METEOROLOGICAL READINGS

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office August 9th 1916.

Date	Barometer reduced to Sea Level and 32° F	Direction of Wind	Rainfall.	Solar Radio in Vacuo	Maximum Temp Shade	Min. Temp	Wet Bulb	Dry Bulb	Remarks
Aug 3	30 330	N		126	83	63	61	68	Fine
,, 4	30·265	N E		103	73	62	61	67	Cloudy
,, 5	30 350	N E		119	77	55	54	59	Cloudy
,, 6	30 2 0	W		100	70	55	60	65	Cloudy
,, 7	30 250	S E		114	72	54	57	55	Overcast
,, 8	30 274	N E		110	71	54	54	58	Overcast
,, 9	30 150	S E		124	82	58	61	64	Fine

Communications, Letters, &c., have been received from—

A.—Dr. O Atkey Wad Medani Mr G F Aldous Plymouth Dr D E Anklesaria Ahmedabad Mr F Aldridge Lond. Anglo-French Drug Co, Lond Aberdeen University Secretary of Dr T D Acland Lond Mr T L Ashforth Doncaster A W T Admiralty Medical Department Director General of

B.—Mr B Bysack Khetri Messrs Boulton and Paul Norwich Messrs Butterworth and Co, Lond Lieutenant Norman Bradly, R.A M C Bedford County Hospital Bedford Secretary of, Messrs C Birchall Liverpool Dr H W Bruce Lond Mrs H Barnes Chippenham Bristol Royal Infirmary Secretary of Dr J Lint n Bogie Atherstone Mr. George Brown Callington Messrs J Ballantyne and Son Paisley Bombay Bacteriological Laboratory Assistant Librarian of Messrs John Bell Hills and Lucas Lond. Belfast Corporation, Chief Tuberculosis Officer of Dr J Blomfield Lond Bristol University Registrar of Dr F E Batten Lond Dr A. G Bateman Lond. Messrs Burroughs Wellcome, and Co Lond Messrs John Bale Sons and Danielsson Lond.

C.—Dr Cortezo Madrid Caterham Sanitarium Proprietor of Messrs Cassell and Co Lond, Coventry and Warwickshire Hospital Coventry Secretary of Messrs E Cook and Co, Lond Captain S W Coffin R A M C Mrs Cole Wilford Major W S Crosthwait, R A M C Chesterfield Hospital Secretary of Dr A. Caddy, Calcutta Captain J G Cooke R.A.M C, Walsall Calcutta Medical Club Hon Librarian of College of Preceptors Lond., Secretary of Dr C Clarke Rotherham Mr Wm Clements Dublin Messrs J Crosfield and Sons Warrington Mr G W Clark Lond.; Captain W Campbell R.A.M C Dr W F Croll Aberdeen, Messrs J and A. Churchill Lond.

D.—Dr Elgar Down Plymouth Dr K Das Calcutta Messrs W Dawson and Sons Lond Mr T Dixon, Lond Captain O De Muth R.A.M C Derby County Asylum Mickleover Clerk to the.

F.—Lieutenant C J Fernandes I M S Dr R Fortescue Fox Lond. Dr W L Fletcher Lond.

G.—Dr A P Ghatak Arrah Lieutenant S B Gadgil I M S Gas Lighting Improvement Co Lond. Rabbi P Gerber Lond Dr Norman Gray Newmarket Mr E W Hey Groves Clifton Lieutenant Colonel J W Grant I M S Grant College Medical Society Bombay Hon Secretaries of Glasgow Royal Infirmary Secretary of

H.—Dr W B Haddad Cairo Messrs Hilton and Co Calcutta Lieutenant E A. W Hall I M S Calcutta Mr Frederick L Hoffman, Newark N J Dr Matthew Hay Bridge of Don Dr John Haddon Denholm Dr Arthur J Hall Sheffield Mr B Whitchurch Howell Farnham Huddersfield Corporation Medical Officer of Health of Messrs A Heywood and Son Manchester Major L. T Rose Hutchinson I M S Major F W Higgs R.A.M C (T) Captain J F Hill R A M C Home Office Assistant Under Secretary of State Lond Captain W G Howarth R.A.M C (T)

L.—Messrs Idris and Co Lond.

J.—Jessop Hospital for Women Sheffield Secretary of

K.—Mr H Kimpton Lond Professor J Kynoch Dundee Mr Denis Kennedy Dublin Dr T N Kelynack Lond, King Edward VII Hospital Cardiff Secretary of; Dr J R Kerr

L.—Lister Institute of Preventive Medicine Lond Director of; Local Government Board Lond. Dr Claude Lillingston Peppard Common London Intercollegiate Scholarship Board Secretary of Messrs E and S Livingstone Edinburgh Messrs Lee and Martin Birmingham; Leeds Public Dispensary Secretary of Messrs. H K Lewis and Co Lond Professor Harvey Littlejohn Edinburgh Leeds City Medical Officer of Health of Dr T M Legge Lond

M.—Mr A. G Mackenzie Lond Medical Society of County of Kings, Brooklyn Librarian of Dr J McEvoy Belfast Surgeon J McFarlane R N Lond Dr C R P Mitchell Malvern Surgeon A. E Malone R N Lond Mrs Michell Ventnor Dr D D Malpas Boscombe Mrs B Monk Lond. Messrs O Mitchell and Co Lond. Mr Richard Hayes McCartney New York; Messrs Menzies and Co Glasgow Mr M B Machhar Mirpur Sakro Macclesfield General Infirmary Secretary of Manchester Victoria Memorial Jewish Hospital Secretary of Miss F C Mackay Aintree Maltine Manufacturing Co, Lond. Miss Ida Meller Lond. Mr D B Master Bombay Miss E M Morris Oxford Dr J A Murray Lond Messrs Mather and Crowther Lond.

N.—Norwich Sanitorium Conn, U S A. Superintendent of Notts County Council Nottingham County Medical Officer of Nottingham Corporation Town Clerk of Surgeon R P Nannis R.N Lond National Food Reform Association Lond

O.—Dr Matthew D O Connell Harrogate

P.—Dr S G Papadopoulos Lond Polish Information Committee Lond. Mr J J Pickles Leeds Dr R. Perriz, Valencia Preston Royal Infirmary Secretary of Colonel J G Pilcher Lond Messrs Parke Davis and Co Lond; Lieutenant Colonel D N Parakh I M.S Major W M Power R A M C

R.—Dr A. Routh Lond. Messrs Robertson and Scott. Edinburgh Royal Institute of Public Health Lond Acting Secretary of Mr Paul B Roth Lond. Dr William J Ryan Utica, N Y Royal Surrey County Hospital Guildford Secretary of Dr J H Rhodes Lond, Royal Victoria Infirmary Medical Library, Librarian of; Reigate Borough Town Clerk of Royal Dental Hospital Lond Dean of Royal Hampshire County Hospital Winchester Secretary of

S.—Dr J G Soutar, Gloucester Surgeon Halliday Sutherland R.N St. Thomas's Hospital Medical School Lond Secretary of Sheffield Children's Hospital Secretary of Mr M Schaerer Lond. Dr G E Shuttleworth Bournemouth Dr G Arbour Stephens Swansea Messrs G Street and Co Lond Surgeon General Georgetown Messrs Spiers and Pond Lond.

T.—Mr W Turner Lond.; Messrs W Thacker and Co., Lond.; Messrs J Timpson and Co Lond Dr J M Twentyman Saltfleetby Mr A. Thorne Southend-on Sea Dr H Neville Taylor Ebbw Vale Dr F W Tunnicliffe Lond. Dr C R. A. Thacker Cambridge Dr Kenneth Taylor Ilfracombe Mr L L. Thain Enyas Harold Tunbridge Wells General Hospital Secretary of

U.—University College Dublin President of University College Hospital Medical School Lond. Secretary of

V.—V

W.—Dr A J Whiting Lond.; Mr E S Weymouth Lond. Messrs W J Wilcox and Co., Lond. Captain Adam White R A M C (T) Mr J A. Wilson, Lond.; Mr C H Wallis Lond., Mr John Walker Pinxton Dr E W Wood Mason Leamington West Kent General Hospital Maidstone Secretary of Messrs Wm Whiteley Lond; Mr R L Wason Midsomer Norton; West End Advertising Agency Lond

Letters, each with enclosure, are also acknowledged from—

A.—Messrs Allen and Hanburys Lond Mr E Arnold Lond Mr E D Atwell Sheffield Aymard Patent Milk Sterilizer Co Ipswich A J R

B.—Dr Dudley Buxton Lond Captain C Banks R A M.C Mr E F Brodie Wickham Market Lieutenant E G Barker R A.M C Bromley Corporation Accountant to the Burnley Guardians Treasurer to the Bolton Infirmary Secretary of Bury Infirmary Secretary of Mr J F Briscoe, Southampton

J.—Miss H Coomber Lond. Sir W J Collins K.C V O Lond Messrs Cox and Co Bombay Messrs T Christy and Co Lond. Croix Rouge Française Lond Secretary of The Church Army Lond.

D.—Messrs Down Bros Lond; Dr H H Davies Brighton Dr W T Dougal Pittenweem Dr M Dockrell Lond. Dalrymple House Blackmansworth

E.—Mr T Edwards Manchester Mr F Evans Felinfach Dr G L Fates Lond

F.—Greenwich Borough Lond. Medical Officer of Health to the Mr H S Gettings Wakefield Dr S Gill Formby Messrs Godwin and Co Winchester Mr H Bellamy Gardner Lond Captain Graham R A.M C Messrs C Griffin and Co Lond

H.—Mr H S Harris Leher Dr H L Haynes Brentwood Haylock Lodge Newton le-Willows Secretary of H P M Major A J Hall R A M C Mr E M Harvey Lond

L.—The I L High Class Cigare to Manufacturing Co Lond

J.—Mr W H Jallan York

K.—Messrs Knight Frank and Rutley Lond Dr K. M Khoury Wad Medani

L.—Mr W E Latham, Ashton in Makerfield Dr O Leyton, Lond Liverpool Guardians Clerk to the Dr D Lynch Lincoln.

M.—Mrs G Myers Birmingham; Mr A R M cGregor Honiton Dr F Maschelein Cardiff Middlesbrough Corporation Treasurer to the Dr H H MacWilliam Liverpool

N.—Dr K Natu Simla New Mental Nurses Co operation Lond Secretary of

P.—Dr E E Prest New Cumnock Captain J Parkinson R A.M C

R.—Dr M J Ryan Crumlin Rochester and Chatham Printing Co Secretary of Messrs Rutley Son, and Vine Lond

S.—Mr W B Saw Lond Messrs W H Smith and Son Lond; Mr R J L. Sladen Jhansi Mr F W Sears Lond Lieutenant Colonel Sunder I M S. Bankipore Captain J W C Stubbs R A M C Sheffield Royal Hospital Secretary of; Sanitary Wood Wool Co Lond. Dr E F Syrett Dovercourt Dr A H Smith Harmer Tees Messrs Squire and Sons Lond.

T.—Messrs O Tuckey and Co Lond

W.—Mr W A Wiltshire Belgave Dr M G L Walker Crewkerne Mr A. Wilson Lond Mrs Worthington Lond Messrs Wilcox Jozeau and Co Lond. Dr W H O Woods Swansea Messrs Willows Francis and Thompson Lond War Victims Relief Committee Lond Secretary of Warneford Asylum Oxford Medical Superintendent of W H S

Y.—York Typewriter Co Lond. Dr I Young Lond.

ABSTRACTS OF

Barber Lectures

OF

RIVERS AS SOURCES OF WATER SUPPLY

Delivered before the Royal Institute of Public Health

By A C HOUSTON, M B, C M Edin, D Sc,
DIRECTOR OF WATER EXAMINATIONS METROPOLITAN WATER BOARD

LECTURE I

The lecturer introduced the subject of his lectures in the following words —' I make no apology for confining my remarks, almost exclusively, to the particular river concerning which my ignorance is least The river in question occupies a unique place in history, its beauties cannot be surpassed and it is the main source of water supply to the greatest city in the world I refer, of course to the River Thames "

The River Thames

Slides were shown in illustration of the topography and geology of the Thames basin, and of the natural flow of the Thames over a 30 year period The flow was shown to be highest in February and lowest in September The intimate relation existing between the rainfall river flow and inverted barometric pressure was then considered

A 20 year period (1891–1910) was then taken and the flow compared month by month with the rainfall It was then shown that the heaviest rainfall was in October and the biggest flow of the river in February Departures from the normal both as regards flow and rainfall were dealt with and explanations were given of the lag' of the river behind the rainfall

The " surface or 'immediate effects of rainfall were next considered and the first section concluded with evidence that curves representing the flow and temperature of the river show an inverse parallelism Twelve lantern slides were shown in illustration of the points dealt with

In the second section the chemical and bacteriological results at Pangbourne Datchet, and Hampton were carefully compared and the conclusion was reached that there was no serious difference in the hygienic quality of the river Thames at these three points It was then pointed out that assuming this to be correct, the greater availability of water in the lower reaches when the river is low but relatively pure might in itself turn the scale against the choice of the river intakes The lecturer explained that excepting Staines, all the intakes of the Water Board were situated in the neighbourhood of Hampton and this was the site of collection of raw river water samples for analysis Four lantern slides were shown to illustrate the various points raised in this section

Yearly Results for 1906–13

In the third section the average yearly results as regards rainfall flow and chemical and bacteriological records over the eight-year period 1906–13 were dealt with at some length Next the variations in the individual years were considered It was pointed out that a wet year is almost necessarily a year of heavy flow of river unless there is some peculiarity in the seasonal distribution of the rainfall and a year of heavy flow is apt to be a bad quality year as judged at all events by some of the tests Usually the curves representing the rainfall flow permanganate turbidity and colour tests are in fair agreement but the ammoniacal nitrogen albuminoid nitrogen chlorine and oxidised nitrogen curves differ markedly from the flow curve The bacteriological results are sometimes in agreement with the flow and sometimes the reverse

The lecturer explained that the apparent discrepancies are due probably to the fact that the yearly flow is influenced not only by the total fall of rain in the year but by its seasonal distribution and periodicity and by the lag of the river Similarly the quality curves are influenced not only by the average flow throughout the year but by the manner for example in which the floods occur It was pointed out that the relation between quality and flow is best judged on a half yearly quarterly or monthly basis Six lantern slides were shown in this section

Half Yearly Results for 1906–14

In the fourth section, the half yearly results were considered in detail, over an eight-year period 1906–14 It was shown that there was not much difference between summer (April to September) and winter (October to March), as regards the albuminoid nitrogen test, but that the quality of the Thames was considerably worse during winter, as judged by the following tests —Oxygen absorbed, turbidity colour, gelatine count, agar count, bile salt agar count, and B coli test

The individual results were next dealt with and it was stated that the summer rainfall and flow of river of 1908 exceeded the winter rainfall and flow of river of 1908–09 The albuminoid nitrogen was higher in the summers of 1906 1907 1908 and 1911 than in the winters of 1906–07 1907–08 1908–09, and 1911–12 The oxygen absorbed from permanganate was higher in the summer of 1908 than in the winter of 1908–09 In all other cases the rainfall flow, albuminoid nitrogen and oxygen absorbed from permanganate results were the highest in winter The turbidity and colour readings were always highest in winter and so were the number of bacteria and B coli results

The results as a whole show conclusively that the Thames is much less impure, as judged by these tests, in summer as compared with winter The conclusion was reached that there is no tangible evidence of a progressive deterioration of the river Thames

The lecturer then proceeded to answer the question Why is the Thames apparently purer in the summer than in the winter months? He pointed out that during the winter the floods wash all sorts of impurities into the river, as, for example from flooded sewage farms and storm sewage overflows Moreover, the velocity of the river stirs up its bed and prevents the deposition of suspended matters On the other hand in the summer much of the water in the river is derived from underground sources and is virtually stored and filtered water Again the storm water sewage overflows which in flood time discharge unpurified or imperfectly purified filthy water into the river are no longer or less often in operation Moreover many of the sewage farms may be practically dried up and the effluents may not be discharging directly into the river These effluents may indirectly reach the river lower down but only after preliminary purification and mixture with underground water Again the slow flow of the river no longer disturbs its bed and any suspended matters in the water are constantly being deposited in the more stagnant reaches

Four lantern slides were shown in illustration of the points dealt with

Quarterly Results for 1906–13

In the fifth section the quarterly results over the period 1906–13 were considered first as averages and then in relation to the 32 quarters individually It was indicated that the autumn and winter rains appear to dominate the winter and spring flow of the river The albuminoid nitrogen curve is peculiar, inasmuch as although it is at its highest in winter the spring fall is followed by a summer rise, and the lowest results are encountered in the autumn The oxygen absorbed, colour and turbidity curves follow the flow curve somewhat closely The results are highest in the winter and lowest in the summer There is no very striking difference between the spring and autumn results and in this respect they differ from the flow curve which is much higher in the spring than in the autumn Having regard to the much greater volume of water in the river the spring quarter is obviously as judged by these three tests a better season for abstraction purposes than the autumn

Next the bacteriological results were dealt with and it was pointed out that they agreed well with the flow curves The results are worst in winter, then in autumn next in spring and the summer quarter is the best A striking feature is that although the results are somewhat worse in autumn than in spring the flow of the river is vastly greater in the spring as compared with the autumn

Lastly the 32 quarters were dealt with individually as regards flow albuminoid nitrogen oxygen absorbed colour turbidity bacterial counts and B coli test As regards the latter test, it was indicated that the best results have

invariably been in the summer quarter The section was copiously illustrated by means of 10 lantern slides

Monthly Results

In the sixth section the monthly results, as regards rainfall, flow and chemical and bacteriological records, were considered at great length It was shown that the ammoniacal nitrogen curve agrees fairly well with the flow, but it reaches its minimum in May, whereas the flow reaches its minimum in September The albuminoid nitrogen curve does not agree very well with the flow curve The oxygen absorbed, turbidity, and colour curves agree very well with each other and with the flow curve The results are lowest in September and highest in December Curves representing the flow, gelatine, agar, and bile salt agar counts and the B coli test are in broad agreement with each other although they also exhibit certain points of dissimilarity The B coli results are practically the same in January and December, whereas the gelatine, agar and bile salt agar counts are much worse in the latter month Considering all the results together May would seem to be the best month of the year The drop in the agar and bile salt agar counts in February is very striking

The lecturer then dealt with the bacteriological tests separately As regards the gelatine counts the best months are May, June, July, and September In April, although the flow is still above the average the number of bacteria is 35 4 per cent below its average In October and November the flow of the river is still below the average, whereas the gelatine count is almost up to the average in October and 37 7 above the average in November December is far the worst month of the year

The agar and bile salt agar curves were shown to follow each other very closely The best results occur in May a rise occurs in June and a slight fall in July, another rise is seen in August, and September shows another fall The abrupt rise in October is far in advance of the rise in the flow of the river The results are much the worst during December

As regards the B coli results, these are very nearly the same in December and January In April the results are 13 43 per cent better than the average although the flow still remains slightly above the average (2 6 per cent) There is not much difference between the May and September results, although July is slightly the best month After September the results deteriorate more rapidly than the flow of the river increases

The lecturer then showed, in relation to the flow, combined chemical and combined bacteriological curves, and pointed out that they fall at the beginning of the year much more rapidly than the flow curve Conversely, they rise much more rapidly than the flow curve at the end of the year In other words improvement in quality precedes decreased flow, and deterioration takes place in advance of increased flow Having regard to the large volume of water still flowing in the river in April and May, the chemical and bacteriological results are very satisfactory from a water works point of view

It was next pointed out that during the winter months there is a frequent oscillation of the flow and quality curves produced by the more or less immediate or surface effects of the heavy rain although this does not affect the fact that the general curves of quality and flow are dominated by the rainfall of a much earlier period

No fewer than 15 lantern slides were shown in illustration of this section

LECTURE II

THAMES WATER IN RELATION TO PATHOGENIC BACTERIA

Dr Houston in his seventh section showed that, as judged by the streptococcus test Thames water did not contain 1 part of fresh excremental matter in over 22 million parts of water From this he proceeded to consider the question of the possible presence of the typhoid bacillus and Gärtner's bacillus in river water Excepting two typhoid like microbes and one Gärtner like microbe, all his elaborate researches, involving the study of over 22 000 microbes yielded negative results Dr Hous on found that on the average he could count on the isolation of the typhoid bacillus and Gärtner's bacillus from *artificially* infected samples of river water where these microbes were present in the proportion of 1 per 9 c c. and 1 per 19 c c respectively His failure to find these bacteria in o herwise comparable but *non infected* samples led him to conclude that these microbes cannot be present in river water in the proportion first stated Seeing that it can easily be proved by the B coli test that the river water is *improved over 1000 times* by the purification processes employed, the lecturer concluded that these pathogenic bacteria *could n t* be present in the water as supplied to consumers in the proportion of 1 per 9000 and 1 per 19 000 c c. respectively

Dr Houston showed *microphotographs* of the two typhoid like bacteria and the Gärtner like microbe, and he then proceeded to show that by the bacteriological examination of sewage we could determine the status of any water supply as regards the number of cubic centimetres presumably free from the typhoid bacillus Briefly, by comparing infected (with known numbers of typhoid bacilli) with non infected samples of sewage, the conclusion was reached that the typhoid bacillus cannot be present in 0 00066 c c of sewage which contains 704 excremental bacteria The figure of 704 thus becomes the criterion figure for judging the probable specific qualities of water supplies For if 0 00066 c.c. of sewage contains no typhoid bacilli, then whatever volume of any water supply, containing no more than 704 excremental bacteria, cannot reasonably be supposed to harbour the typhoid bacillus in that volume For example the Thames contains 704 excremental bacteria in 15 c c, and as the water is purified 1000 times as judged by the B coli test the inference is that the typhoid bacillus is not present in 15 litres of the water as supplied to consumers

"RESISTANCE TO FILTRATION

In his eighth section the lecturer dealt with the "resistance to filtration" of Thames water and the microscopical appearances of its suspended matter By resistance to filtration is meant the degree to which the suspended matters (living and dead) in a water interfere with its filtration by "blocking" the filtering material Having explained the means adopted for testing this point an ingenious method was next described of obtaining permanent qualitative and quantitative photographic records of the suspended matter in the water

It appears that *raw* Thames water filters fairly well on the average but in the spring and winter the results may be widely different Photographs were first exhibited showing that during summer the water filters well, owing to the comparative absence of suspended matter Next some winter "flood" results were shown and the change in appearance was so striking as easily to explain the wide difference in the observed filtration results Then the spring results were illustrated, and here, apparently we have to deal with algal growths as well as with amorphous organic and inorganic matters

STORAGE OF RIVER WATER PREVIOUS TO FILTRATION

In his ninth section Dr Houston described some of his now well known researches on the vitality of the cholera vibrio and the typhoid bacillus when artificially added to river water in enormous numbers He concluded that storage was inimical to the prolonged vitality of these pathogenic bacteria and he drew an important distinction between "cultivated" and "uncultivated" microbes It appears that the latter die much more speedily than the former in river water under conditions of storage

Next in his tenth section the lecturer summarised his prolonged r searches on the advantages of storing river water *in reservoirs antecedent to filtration* Taking the Chelsea reservoir as an example Dr Houston explained that the percentage reduction (due to storage) in the gelatine agar and bile salt agar count was about 95, 84 and 88 respectively As judged by the B coli test the water was improved at least 100 times For example 48 3 per cent of the samples of river water yielded positive results with 0 1 c c of water whereas only 32 5 per cent samples of stored water yielded positive results with 100 times as much water — namely, 10 c c

Dealt with as actual figures the gelatine count was reduced from 4465 to 208 the agar count from 257 to 4 and the bile salt agar count from 41 to 5 Chemically the reductions effected by storage were as follows —

Ammoniacal nitrogen	63 1 per cent
Albuminoid	29 1
Permanganate test	27 5
Turbidity	85 9
Colour	45 8

Turning next to the Staines and Lambeth reservoir results, it was pointed out that the river water before storage contained B coli in 0 1 c c. (or less) in 53 2 per cent of the samples examined. After storage in the Staines reservoirs about the same number (56 per cent) of samples yielded positive results with 100 times as much water—namely 10 c c. The Lambeth (Island Barn) results were not quite so good but were still very striking

The percentage reduction in the bacterial counts were as follows —

	Staines	Lambeth
Gelatine count	87 per cent	89 per cent
Agar count	64 ,,	64 ,,
Bile salt agar count	91 ,,	86 ,,

The percentage reduction in the chemical results consequent upon storage were —

	Staines	Lambeth
Ammoniacal nitrogen	18·6 per cent	29 3 per cent
Albuminoid nitrogen	6 72 ,,	Slight apparent increase
Permanganate test	27·5 ,,	17 7 per cent
Turbidity	66 4 ,,	73 1 ,,
Colour	45 2 ,,	42 1 ,,

The percentage number of samples in the case of other reservoirs, yielding positive results with 1 c.c. (or less) of water as judged by the B coli test was as follows —

River Thames	95·0 per cent
Walton reservoir	22 6 ,,
West Middlesex No 1 Reservoir	35 2 ,,
,, ,, ,, 3 ,,	35 3 ,,
,, ,, ,, 4	39·4
,, ,, ,, 6 ,,	45 4 ,,
Sunbury reservoir	54 9
Grand Junction (Hampton) reservoir	19 5 ,,
,, (Kew) ,,	33·4 ,,
Kempton Park	13 0 ,,

Conclusions in Regard to Storage of River Water

The lecturer's conclusions (under this section) were as follows —

1 Storage reduces the number of bacteria of all sorts the number of bacteria capable of growing on agar at blood heat and the number of bacteria capable of growing in a bile-salt medium at blood heat chiefly excremental bacteria

2 Storage reduces the number of coli like microbes and the number of typical B coli.

3 Storage may alter certain bacteriological river water ratios, for example it may reduce the number of typical B coli to a proportionately greater extent than it reduces the number of bacteria of all sorts

4 Storage if sufficiently prolonged devitalises the microbes of water borne disease (e g, the typhoid bacillus and the cholera vibrio)

5 Storage reduces the amount of suspended matter colour ammoniacal nitrogen, and oxygen absorbed from permanganate

6 Storage usually reduces the hardness and may reduce (or alter the quality of) the albuminoid nitrogen

7 Storage alters certain chemical water ratios, for example the colour results improve more than the results yielded by the permanganate test

8 Storage has a marked 'levelling' effect on the totality of water delivered to the filter beds

9 Storage tends generally to lengthen the life of the filters (Only under exceptional conditions is the converse true)

10 An adequately stored water is to be regarded as a safe water and the 'safety charge' which has occurred in a stored water can be recognised by appropriate tests

11 The use of stored water enables a *constant* check to be maintained on the safety of London's water *antecedent* to and irrespective of filtration

12 The use of stored water goes far to neutralise or wipe out the gravity of any charge that a water supply is derived from polluted sources

13 The use of adequately stored water renders any accidental breakdown in the filtering arrangements much less serious than might otherwise be the case

The lecture was most copiously illustrated with lantern slides

LECTURE III

TESTING THE "RESISTANCE TO FILTRATION"

In his third and final lecture Dr Houston showed, for the benefit of those not previously present, the methods adopted for testing the "resistance to filtration" shown by various waters, and also the method of obtaining quantitative and qualitative photographic records of the suspended matters present in such waters

Briefly, 100 c.c of the sample of water are filtered through four thicknesses of a standard linen tightly bound round the end of a piece of glass tubing, so that the whole of the suspended matters remain as a thin film on the inside of the linen Tap water (which is practically free from suspended matter) is then filtered, under a constant head, through the linen and the filtrate collected for one minute and then measured If the original water contains very little suspended matter the skin on the linen is so thin that 200–300 c c pass through it in the minute. On the other hand if the original water contains a great deal of suspended matter the skin on the linen is so thick and impervious that very little, or none, of the tap water passes through it To correlate the "resistance to filtration" results with the appearance of the suspended matter present the lecturer described at some length his methods for obtaining permanent qualitative and quantitative photographic records

Dr Houston showed that tap water gave an average "resistance to filtration figure of 281, and this is to be regarded as the criterion figure for judging all other results The River Thames gives an average of 112 and shows marked seasonal fluctuations

PHYSICAL AND BIOLOGICAL CHANGES IN RIVER WATER UNDER STORAGE

Turning next to the physical and biological changes occurring in river water under conditions of storage, the lecturer showed that reservoirs like the Walton and Chelsea give excellent averages (249 and 228 respectively), and the results are wonderfully uniform throughout the year In explanation of these figures a series of photographic slides were shown and it was made apparent that the high filtration figures were due to these reservoirs being relatively free from algal, or other growths, and suspended matters in general

The Lambeth (Island Barn) reservoir results were next dealt with and here the average filtration figure was low and the fluctuations during the year very considerable Beautiful photographs were shown in explanation of the results observed It was shown that the 'falling off' in the results was due to the development of algal and other growths (e g, Fragillaria Asterionella, Ceratium, Tabellaria &c.)

Then the Staines reservoir results were considered and their importance may be judged by the fact that this is the source of supply to the Sunbury Kempton Park, Grand Junction (Hampton and Kew) and West Middlesex works The average results were not very satisfactory and in August and September 1915 and March, 1916, the filtration figures showed a marked falling off A series of striking photographs was shown indicating the reasons for these changes It appears that in August and September the chief offender was Fragillaria, and in March, Asterionella was mostly to blame

All the reservoirs supplied with Staines water were then considered in detail as regards filtration results The Sunbury, Grand Junction (Hampton) Grand Junction (Kew), and West Middlesex reservoirs all gave wonderfully similar results the average filtration figures varying from 102 to 168 as compared with 249 in the case of the Walton reservoirs The pattern of the various curves shown as slides was also very similar, the results being specially unsatisfactory about August and September, 1915, and again in March, 1916 A large number of photographs was shown in explanation of the "falling off" in the filtration results, and it was made abundantly clear that in summer Fragillaria and in spring Asterionella were the chief causes of the trouble

In concluding the section (Section 11) the lecturer dealt with the question of how far laboratory filtration results could be used to pre judge actual sand filtration experiences Although many factors some but little understood, have to be taken note of in this connexion Dr Houston was able to show by means of slides that sometimes the number of acres of sand

cleaned at the works agreed almost exactly with the labora tory filtration results the former curve being, of course, inverted The inference seems to be that by the periodical examination of reservoir water the life of the sand filters can be judged with tolerable accuracy

ALGAL-INFECTED WATERS

The next section (No 12) was devoted to the treatment of algal infected waters with copper sulphate It was pointed out that the dose required to kill the different organisms varied within very wide limits The maximum dose is hardly permissible, and with smaller doses there is always the chance of the way being paved for the active development of more resistant forms Utilising this line of thought, the lecturer, for purposes of illustration conjectured the possibility of in a partial sense, a series of doses of copper sulphate leading to the growth of widely different organisms To give point to his meaning, Dr Houston showed a most beautiful series of slides in the following order Uroglena, Asterionella, Anabœna, and Synura, Spirogyra and Oscil laria, Fragillaria and Volvox, Dinobryon, Synedra, and, finally, Ceratium As Dr Houston remarked, when you inter fere with the balance of nature you can never be quite sure of the ultimate consequences

Subject to the treatment being carried out by experts, the lecturer, however, was not opposed to the judicious use of copper sulphate as an algicide Apart from sentiment it may be a sound financial proposition to anticipate algal troubles by an inhibitory dose of copper sulphate as this may mean prolonging the life of the filter beds very con siderably Apparently copper sulphate is a better algicidal than bactericidal agent, the converse holding true with the hypochlorites

In Section 13 the lecturer dealt with the taste of algal infected water The descriptions given to these tastes and odours by scientists (e g, geranium, mossy, cucumber, grassy, violet nasturtium, &c) carry small conviction to the consumer, who is apt to use more forcible expressions—e g, like castor oil or rotten fish Asterionella, Cyclotella, Anabœna, Oscillaria, Dinobryon, Volvox Uroglena, and Synura, are but a few of the growths which have been credited with the production of evil tastes A beautiful slide of Tabellaria was shown, and it was stated that the geranium like taste produced by this growth could be successfully overcome by a small dose of postassium per manganate (5 lbs per million gallons) Hypochlorites, in comparison, are of little use as "taste removers'

FILTRATION—WATER AND DISEASE

Having dealt in previous sections with the River Thames from the physical, chemical, and bacteriological points of view and with the changes which occur in it consequent upon storage the lecturer proceeded (in Section 14) to consider the effect of the last stage in the purification process (namely, filtration) on the quality of water finally delivered to consumers

The works supplying Thames derived filtered water are the following Sunbury, Kempton Park, Grand Junction (Hampton and Kew) Southwark and Vauxhall, Lambeth Chelsea and West Middlesex For the 10 year period 1906–16 the average bacterial "count' per cubic centimetre in the raw river water was —

Gelatine	2900, reduced to	14 8	over 93%	reduction
Agar	248	,, ,,	2 8	,,	,,
Bile salt agar	28	, ,	0 5	,, 93%	,,

As regards the B coli test over the same period it appears that only 21 2 per cent of the samples of filtered water con tained B coli in 100 c c only 5 7 per cent in 10 c c and only 0 9 per cent. in 1 c c The raw river water contained B coli in 0 1 c c in 50 2 per cent of the samples examined so that the conclusion is obvious that as judged by this test the river water is purified over 1000 times before delivery to consumers

The actual chemical results and percentage reductions were as under —

Ammoniacal nitrogen	0·0069 to 0·0003	(95 6 per cent)
Albuminoid ,	0·0155 ,, 0·0061	(60 6 ,,)
Permanganate test	0 2099 0·0846	(59 6 ,)
Colour test	71 , 19	(73 2)

Dealing with the quarterly results the lecturer showed that the gelatine agar and bile-salt agar counts were highest in the filtered water in summer and lowest in winter This was ascribed not so much to more rapi of filtration during the months of maximum consum but rather to the effect of temperature The B co yielded the worst results in winter and the best i during the spring

In his last section (Section 15) Dr Houston dealt wi question of water in its relation to disease Chart shown proving that deterioration of the supply as judg the more important tests "lags' a long way behin autumnal rise in the incidence of typhoid fever

CONCLUSION

The lecturer concluded with the following remarks —

"You are all aware that a Joint Select Committee of Houses of Parliament (1910) endorsed the recommend of the Water supply Commission of 1869, as to the a priation of sources, the Metropolitan Water supply Cor sions of 1893 and 1899, as to the keeping of suitable re by water undertakers, and of the Sewage Disposal Cor sion as to the formation of rivers or watershed boards trolled by a central administrative authority

They recommended the establishment of such a ce administrative authority as was contemplated by the I Commission on Sewage Disposal and the division of country into watershed areas, and the appointment for t areas of local representative boards, who, subject to guidance and control of the central authority should secute systematic and continuous inquiries into the w supply of their jurisdiction take all necessary measure husband such supplies, both surface and subsoil, se their preservation from pollution, and advise on t allocation for sanitary, industrial, and other purposes

Visualising the future, I foresee that a vast amount of w has yet to be done on water supply In these three lect I have endeavoured to present, as faithfully as possible, aspect of this great problem—namely, the question of ri as sources of water supply

In conclusion I still hold, as a counsel of perfection, the purest water supply is the supply that requires no pu cation But this is not inconsistent with the view t rivers by adequate means, can be purified to any stand of safety required'

OBSERVATIONS ON THE EFFECT OF TH ADDITION OF FRESH HUMAN BLOOD SERUM TO ARTIFICIAL MEDIA

BY LEONARD S DUDGEON F R C P LOND

LIEUTENANT-COLONEL, R A M C (TEMP) CONSULTING BACTERIOLOG TO THE EXPEDITIONARY FORCE SALONICA MEMBER OF ADVI OF COMMITTEE ON EPIDEMIC DISEASE AND SANITATION M E F

F BAWTREE, M R C S, L R C P LOND

AND

DUDLEY CORBETT, M A, M D OXON M R C P LON

(From the Department of Pathology St Thomas's Hospital)

IT has long been recognised tha' the ordinary med which are employed for the cultivation of bacteria outsi the tissues are not ideal and it is for this reason that a bo fluid is often added to various media to stimulate growt The disadvantage of this method is due to the fact that t body fluid is usually subjected to the action of heat in t preparation of the media thus reducing some of its ac properties during the process of sterilisation In the case many of the ordinary pyogenic bacteria such as the strep cocci and the pneumococci there may be a comparative feeble growth in many of the media which are employed while experience has shown that in some of the most acu infective processes due to streptococci the original growth o the organism outside the body is often extremely limited a a time when it is most essential to obtain an ac ive growt of the coccus During the period when one of us (L S D was engaged in studying the so called aggressive exudate from the tissues it was noticed that in some instances a abundant growth of streptococci was obtained when a exudate was added to the ordinary media in comparative

1 Croonian Lectures Royal College of Physicians of London 19 THE LANCET 1912, vol i pp 1593 1671 1737

large amounts while an extremely limited growth was obtained in those media inoculated without the addition of a body fluid. Further it was proved that the addition of the unheated body fluid was the cause of the abundant growth and not the massive inoculation of the media, although some exudates had not this stimulating action on bacterial activity.

Human blood serum was obtained for the preparation of culture media from healthy adults and from others who came to the laboratories for various purposes. As far as we are aware, there is no difference in the nutritive value of the serum from a patient suffering from pernicious anæmia and that of a strong over-fed man while the amount of serum obtained is much greater from the case of severe anæmia. Whether normal serum, however, has any special advantages for the growth of bacteria will be proved with greater experience of this method of cultivation.

Method of collecting human blood serum.—We employ special needles for the purpose which have the advantage of a wide bore, giving a rapid flow of blood, and a sharp edge which easily passes through the toughest skin into the vein. To the distal end of the needle is attached a piece of rubber tubing some 3 or 4 inches long, and the whole is enclosed in a test-tube sterilised by dry heat. The blood is collected from a vein at the bend of the elbow which is made prominent in the usual way and any amount from 40–100 c.c. is collected in large sterile test-tubes. The whole process takes very little time, and in our experience contamination has not occurred, although we cannot claim to employ any special method of skin sterilisation but carefully avoid touching the active portion of the apparatus or the patient's skin except with sterile instruments.[2] After the blood is collected it is allowed to clot in the ice safe, and the serum to settle which is merely a question of a few hours although varying according to circumstances to which we need not refer here. Blood collected in the morning will give a large bulk of clear serum free from red cells by the afternoon. This serum is then drawn up in quantities varying from 2–3 c.c. in glass tubing drawn out and sterilised in the flame at one end the same time always employing a long barrelled tube for the purpose. Human serum, owing to its weight falls to the bottom of the tubes of fluid media, and it is here that the massive growth of bacteria is obtained. For the preparation of solid media the serum is added to the agar at the lowest possible temperature and then converted into fresh serum agar slopes or plated as required.

No experiments were made with animal serum, as we were able to obtain ample quantities of fresh human serum every morning without any trouble and it was always sterile. In a big hospital human serum is much more readily obtained than the serum from large animals as quite apart from both in-patients and out-patients whose blood requires examination students and others are generally benefited by a little blood letting. We also used both sterile ascitic and pleuritic sera, but these appear to mix more intimately with the liquid media because of their lighter specific gravity when compared with that of blood serum which always falls to the bottom of the tube and there acts as the stimulating property of the medium. From the experiences which we have had with sera other than blood sera it would seem that with these there is less inhibitory action on the growth of non-pathogenic bacteria than occurs with the unheated blood serum. This in itself if proved to be correct is a point strongly in favour of blood serum. The addition of fresh ascitic fluid or hydrocele fluid or even human serum to melted agar as a medium for the growth of such bacteria as the gonococcus and meningococcus has long been the practice of certain bacteriologists while fresh human or animal serum smeared over the surface of agar is another type of medium activated by the addition of fresh animal juices. We consider that the introduction of fresh human serum to the carbohydrate media produces the most satisfactory medium for the growth of such bacteria as streptococci, pneumococci, meningococci and gonococci—that is those bacteria which require something more than is usually supplied outside the tissues. Such organisms as the meningococcus are able to live in carbohydrate media for relatively long periods if human blood serum has been added as is described elsewhere in this communication. Further, the morphological and cultural characteristics of such an easily cultivated organism as the diphtheria bacillus are considerably altered by growing it in various carbohydrate media containing fresh human serum.

[2] We consider this method of obtaining blood for the purpose of culture media [illegible] efficient with [illegible] have employed during many years [illegible] successful [illegible]

A. The Effect of the Addition of Fresh Human Blood Serum to Artificial Media upon the Growth of Bacteria.

The most notable effect of the addition of fresh serum is that upon the amount of growth produced. Whether the serum is added to liquid carbohydrate media or whether it is incorporated with agar according to the method described above the amount of growth in actual visible bulk is considerably greater than can be obtained with any other medium available. This effect is particularly striking in the case of those organisms which by the ordinary cultural methods grow but feebly such as some strains of streptococci and pneumococci, the meningococcus and the gonococcus. It may be mentioned at this point that where it is subsequently stated that "no growth" has occurred in any liquid medium we mean no obvious growth to the naked eye whether as a deposit at the bottom of the tube, adherent to the sides, or suspended in the medium. Films were only made in those cases where it was of considerable importance to discover a trace of growth.

Streptococci.—The favourable influence of fresh serum is best shown when a streptococcus is grown in the sugar media, particularly in the case of dextrose. The deposit in the tube to which serum has been added is frequently enormous and composed of large flocculent masses while that in the control tube is much finer in consistence and far less in actual bulk. Advantage may be taken of this mass of growth in the preparation of a vaccine. If the deposit is washed in saline and emulsified it will form a perfectly homogeneous emulsion free from clumps and in density equal to an emulsion prepared from a 24-hour agar culture of bacillus coli using the same volume of saline in each case.

Pneumococci.—The effect is no less striking in the case of the pneumococcus. Although the amount produced in the sugar media in 24 hours may not be so great as is the case with some strains of streptococci, yet it is always far greater than in those tubes to which serum has not been added. If a subculture on to nasgar produces only a scanty growth or fails entirely a fine growth of large colonies may be obtained if the fresh serum agar is employed.

Meningococci.—All the strains tested were isolated directly from the cerebro-spinal fluid of cases of cerebro-spinal fever. The most favourable media for this organism were found to be dextrose with fresh serum and the fresh serum agar. In the former an enormous deposit is obtained in 48–72 hours, and in the latter a fine crop of large colonies. When subcultures on nasgar fail the fresh serum agar will frequently show abundant growth.

Gonococci.—Three strains of this organism were examined.

1. Cultures from the urethra were made directly on to three red cell agars, one tube of nasgar and one of fresh-serum dextrose. At the end of four days incubation all were sterile except the fresh serum dextrose which showed an abundant growth of the gonococcus. Subcultures were then taken from the latter on to red cell agar and fresh serum agar. No growth took place on the red cell agar but was abundant on the fresh serum agar.

2. In this case the urine was full of pus and a portion of the deposit was put directly upon red cell agar, fresh serum agar and fresh serum dextrose. The red-cell agar proved sterile whereas growth was abundant in the other two media.

3. A swab from the urethra was inoculated into fresh serum dextrose. A good growth was obtained at the end of 48 hours in which an organism resembling the gonococcus was predominant. The deposit was plated on a fresh serum agar plate and numerous colonies of the gonococcus were obtained.

Diphtheria.

The growth and morphology of the diphtheria bacillus in fresh serum media are best considered under one heading.

If we refer to the standard work on the diphtheria bacillus by Netall and Graham Smith[3] we find certain remarks on the morphological features of this organism to

[3] The Bacteriology of Diphtheria. Netall and Graham Smith. Cambridge University Press, 1912.

which we must refer It might be as well to mention at the outset that the diphtheria bacillus grows abundantly in many of the carbohydrate media containing fresh human blood serum, but more especially in the presence of dextrose It is also our experience that if the bacillus grows on inspissated blood serum it will also grow, and grow well, in the serum media to which we have referred The morphological characters may be absolutely distinct if grown in various carbohydrate media to which the serum has been added, and, further, the morphology will be quite distinct in litmus dextrose containing fresh human serum compared with that on inspissated blood serum, although the bacillus may be growing equally well in each case Further, a diphtheria bacillus which has certain typical characteristics when grown on blood serum will give equally distinctive characteristics in one of the sugar media containing blood serum, while the original morphological appearances can be restored in the next subculture back on to blood serum or *vice versa* Such alterations are produced by growing the organism for 24 hours at 37° C and then making the transfer and again incubating for another 24 hours and repeating as required for the purpose

The abundance of growth in the fresh serum media as compared with that in the simple carbohydrate media and the greater metabolic activity of the organism are very definitely emphasised, but of course these points have been to some extent recorded previously by Graham Smith and others in their experiments with Hiss's serum-water media to which the carbohydrates had been added, although this is a medium which is subjected to heat for the purpose of sterilisation Williams[4] in 1902 found out the value of a medium known as ascitic broth, which consisted of broth to which 25 per cent ascitic fluid had been added. In this medium he found that the diphtheria bacillus grew abundantly and produced a high degree of toxicity Other workers who are quoted by Nuttall and Graham Smith employed a medium of human serum broth containing 10 per cent of the serum

1 *Growth and and production in the sugar media* —Of 12 strains examined 4 were put through the following media with and without fresh serum Dextrose or maltose, lactose, cane sugar, mannite Of the plain media without serum, dextrose or maltose was readily acidified, lactose slightly after 48 hours on three occasions, cane sugar once slightly after 72 hours, but mannite never The corresponding media to which blood serum was added were all acidified in periods varying from 24–72 hours, mannite being the least affected, while the growth in every case was much more extensive than in the plain carbohydrate media [5]

2 *Growth on fresh serum agar* —This was found to be a particularly favourable and convenient medium for the cultivation of the diphtheria bacillus, especially for plating out a mixed culture In this respect it is far superior to ordinary nasgar The throat swab from one case was plated direct on two plates, one of nasgar and another of fresh serum agar Only staphylococci grew on the former, while on the latter together with the cocci were masses of diphtheria colonies showing organisms of the beaded type. Another case gave an abundant growth of the diphtheria bacillus on each plate, but on the fresh serum agar the growth was purer and the individual bacilli were larger and showed a more typical arrangement The characters of the colonies growing on this medium are distinct, being large, grey, and moist, and tending to be confluent

3 *The influence exercised by fresh serum upon the growth of the diphtheria bacillus as opposed to other organisms present in the throat swab* —Six swabs were taken from cases of clinical diphtheria and put direct into fresh serum maltose and on to inspissated blood serum Where diphtheria bacilli were present in the liquid medium they were also present on the solid and the proportions in each case were about equal. The fresh serum maltose favoured the growth of streptococci and diplococci while the proportion of staphylococci was greater on the solid blood serum

4 *The effect of liquid fresh serum media upon the morphology of the diphtheria bacillus* —This effect was most remarkable and is best illustrated by quoting examples from each case examined

Case 1 —In fresh serum dextrose were found bacilli of the striped form In fresh serum lactose they were chiefly of the short form and many of the Hoffmann type while in fresh serum mannite they were of the typical long type with clubs

Case 3 —On blood serum were the long and clubbed formations while in the fresh serum dextrose the bacilli were long and swollen in the middle, and similar shapes only were seen in the fresh serum mannite.

Case 6 —On blood serum the bacilli were long and beaded, and many typical club shapes were present, while on fresh serum agar they were of the thin type with very few clubs In fresh serum dextrose the bacilli formed characteristic clumps, while the individual organisms were short, oval in shape, with pointed ends A few long forms were seen, but these were rare In fresh serum cane sugar there were typical clumps of beaded bacilli of a very thin type No oval forms were seen nor did any of the bacilli present resemble those seen in the fresh serum dextrose

We have, then, from the use of these culture media four different aspects of the morphology of this organism all grown from the same strain the club shape, the long beaded, the very fine thin type, and that resembling Hoffmann's bacillus.

Summary —The value of fresh serum in the cultivation of the diphtheria bacillus would appear to be (1) its addition to ordinary agar for plating purposes, (2) its use in the production of a liquid medium most favourable to the growth of the organism, and (3) in affording a means of studying its very variable morphology The precise significance of Hoffmann's bacillus is at present undetermined, at any rate, it cannot be said with absolute certainty that morphologically it is an organism quite distinct from the diphtheria bacillus. It has been shown that the presence of fresh serum will cause certain sugars to be acidified by the growth of the diphtheria bacillus, upon which it would otherwise have no action, and that its morphology is profoundly altered under certain conditions

Staphylococci —A similar influence is exercised by fresh serum upon the amount of growth produced in the sugar media by the staphylococcus aureus, although not to such a notable extent, this organism growing readily enough without serum. The albus variety has not so far been specially investigated.

B *The Presence of Fresh Serum Encourages Growth where Culture on Other Media Fails*

We have considered the amount of growth produced in media to which serum has been added, and it may now be of interest to consider instances where the presence of fresh serum encourages growth where culture on other media fails We have already seen instances of this point in the case of gonococci and meningococci and there are many other examples in the case of the pneumococci and streptococci

Pneumococci —(i) Growth was obtained in lactose, but not in raffinose, salicin, or inulin The addition of fresh serum, however, produced abundant growth in these media, all being inoculated from the same source and at the same time

(ii) A pneumococcus was obtained from a blood culture and was growing fairly well on nasgar Subcultures were made from this into dextrose, raffinose, salicin, mannite and inulin, with and without fresh serum With the exception of inulin, no obvious growth took place even after three days in the plain media but was abundant in 24 hours in all those to which fresh serum had been added There was a slight growth in the inulin although the medium was unaltered while the fresh serum inulin was acidified and clotted After passage through a mouse it acidified and grew in plain dextrose and raffinose but still did not clot the heated serum inulin We shall return later to the effect of fresh serum upon the metabolic characters of both pneumococci and streptococci

Streptococci —(i) A streptococcus isolated from a wound was subcultured into dextrose salicin and inulin with and without fresh serum Growth occurred in all the serum tubes in 24 hours but in the plain media there was none at the end of 48 hours

(ii) A streptococcus was isolated from a case of ulcerative endocarditis It grew slightly without acid formation in plain dextrose after 48 hours, but not in raffinose salicin

[4] A Williams quoted by Nuttall and Graham-Smith 1906 p 175

[5] The considerable acidity produced by the growth of the bacillus in dextrose with human blood serum may considerably affect the pathogenicity of the organism

or mannite. In similar media with fresh serum there was abundant growth with acid production in 24 hours

(iii.) A streptococcus could not be induced to grow in subculture upon nasgar although a fair growth could be obtained on a similar medium to which red cells had been added. It was inoculated into fresh serum dextrose and an abundant growth was obtained in 24 hours, and subcultures were made from this into dextrose salicin, mannite, and cane-sugar with and without fresh serum There was growth in the plain cane sugar in 48 hours but in none of the others without serum. In all the serum tubes there was ample growth in 24–48 hours

Numerous other examples were met with, where growth would only occur in the dextrose or maltose without serum but where there would be growth in all the media inoculated to which serum had been added

Not only does the presence of fresh serum increase the amount of growth of the streptococci and pneumococci in pure culture, but there is a distinct tendency for it to encourage the growth of these organisms in subcultures from pus and sputum where staphylococci are also present If a swab infected with staphylococci and streptococci be inoculated into two tubes one containing dextrose and the other fresh serum dextrose, the latter will show a very large growth of streptococci with few staphylococci, while the plain dextrose may contain staphylococci only, or the two organisms in about equal numbers depending no doubt upon the character of the streptococcus in question It is however, a rapid and easy method of getting a considerable growth of a streptococcus where there is a mixed infection

Further, if we are dealing with a sputum from a case of suspected pneumococcal infection it is a useful plan to put it straight into fresh serum dextrose. If pneumococci are present in the sputum this medium will grow them in large numbers, and perfect examples of capsule formation may be capable of demonstration A streptococcus of the salivarius type is nearly always present in association, but can be separated by subsequent plating if desired

C *The Presence of Fresh Serum Stimulates the Growth of Pathogenic Organisms as Opposed to Non-pathogenic During the First 24–48 Hours at 37° C*

The following is an example of the value of the fresh serum media in this respect A sputum in which pneumococci were present in very large numbers was inoculated into inulin and raffinose with and without fresh serum Both the serum media showed practically a pure culture of pneumococcus, whereas the plain tubes grew other organisms as well. Plates made from the raffinose showed a limited growth of the pneumococcus and numerous other colonies, whereas those made from the raffinose serum tube gave a pure culture of the causal organism.

Further experience has led us to adopt a similar plan for the isolation of the causal organism when taking a swab from the throat nasopharynx tooth socket or other infected focus likely to be contaminated with air organisms and led us to use the method in cases of suspected diphtheria The following is an interesting example of the inhibitory influence exercised by fresh serum Dextrose and fresh-serum dextrose were inoculated from a tube of heated blood serum upon which suspected diphtheria bacilli were growing from a throat swab In 24 hours the dextrose tube showed a few diphtheria bacilli but very large numbers of yeast organisms while in the serum tubes no yeast could be seen, but typical diphtheria bacilli were abundant This culture was plated on fresh serum agar and subcultures on to inspissated blood serum and in each case a pure growth of B diphtheriæ was obtained In another 24 hours however, large numbers of yeast organisms whose growth had hitherto been inhibited by the presence of the fresh serum were present in the tubes of fresh serum dextrose

D *The Length of Life at 37° C of Organisms Growing in Carbohydrate Media to which Fresh Serum has been Added*

The organisms specially tested in this respect were four strains of the meningococcus, all isolated from the cerebro-spinal fluid of cases of cerebro-spinal fever, one of micrococcus catarrhalis and two of the gonococcus Fresh serum dextrose was the medium employed and subcultures were made from the deposit of the original tube at weekly intervals No fresh supply of serum was added afterwards

Meningococcus—1 Lived for eight weeks in one tube of this medium Subculture on to nasgar failed after four weeks but good growth was obtained on fresh serum agar for the remainder of the period

2 Lived for six weeks Subcultures on to nasgar were successful to the end, no further growth being observed on fresh serum agar

3 Lived for three weeks Subcultures grew on nasgar, no further growth on the fresh medium.

4 Was kept in the following media, to which serum had been added—maltose, lactose raffinose, and mannite Maltose was acidified but the others were alkaline Subcultures to nasgar succeeded only for three weeks At the end of four weeks subculture from the serum maltose failed on fresh serum agar, but the other cultures gave abundant growth on this medium after five weeks especially the serum mannite which was still alkaline These cultures are still under observation Possibly the absence of acidity favours the life of this organism *

M catarrhalis—This organism lived seven weeks, and subcultures were obtained to the end on nasgar

Gonococcus—1 Was alive after 12 days, but dead in 17 days Abundant growth was observed on fresh serum agar, while those on red-cell agar were sterile. 2. Lived for one week †

E *The Effect on Morphology*

In the case of the streptococci the invariable effect of the presence of fresh serum in the carbohydrate media is to encourage longer chain formation, and the individual cocci are larger and stain better On the other hand, with the pneumococci the diplococcal arrangement is favoured as against the streptococcal and well marked capsule formation may occur A strain obtained from an empyema grew in all the plain sugar media as a typical streptococcus but as a diplococcus in all those to which fresh serum had been added It would seem therefore, that fresh serum by providing an environment suitable to vigorous growth of an organism causes it to display its proper morphological characters Its influence upon the morphology of the diphtheria bacillus has already been described

F *The Effect of the Addition of Fresh Human Serum to Artificial Carbohydrate Media upon the Action of Organisms on these Media*

The only action of bacteria upon artificial carbohydrate media which has been studied is the acid production. It may be stated at the outset that the addition of fresh serum has no effect one way or the other upon gas production as far as we can estimate from the experience at hand Speaking generally this addition to the media will not only stimulate the growth of organisms as has already been shown but will cause them to acidify those media upon which otherwise they would have no effect. These two actions usually run *pari passu* but by no means always By the use of litmus media throughout it is possible to see very clearly and with reasonable accuracy the amount of acid that has been produced in a given time

It is possible to have abundant growth without any visible acid production, this occurs chiefly in the case of certain strains of streptococcus growing in fresh serum mannite We can also have all degrees of acid production in the various media Faint acidity is illustrated by a red tinge at the bottom of the tube, when stronger the whole of the medium is red, and when the acidity is still more marked the medium will gradually become decolourised Decolourisation of the medium may also occur without any visible acid production This happens sometimes in serum mannite with some strains of streptococci and pneumococci It also occurred with the Shiga bacillus which decolourised serum raffinose, cane sugar and dulcite

The streptococci—Thirty four strains were studied, no attempt having been made to group the cases in any way but simply to make a statement of the reactions obtained The sugar media employed were dextrose raffinose, salicin mannite inulin and sometimes maltose in the place of dextrose if no tubes of the latter happened to be available at the moment Milk was only used occasionally because it was not considered a suitable medium with which to

* At six weeks the serum mannite became contaminated, but the organism remained alive for one week longer in fresh-serum lactose making seven weeks of life altogether Two more strains have since been tested for length of life one lived five weeks and the other six weeks in fresh serum dextrose.

† Two other strains have since been examined one lived 19 days in fresh-serum dextrose and the other 10 days on fresh-serum agar

compare the effect of the addition of fresh serum The inulin employed was Hiss's heated serum inulin

The addition of fresh human serum to these media before inoculation had the effect of very considerably increasing the capacity of the streptococcus under examination to ferment them There were many examples where none of the plain media were acted upon by the organism, but where all

Table showing the Effect of Fresh Serum upon the Fermentation Tests

Medium	Streptococci 34 strains		Pneumococci, 13 varieties	
	Acidified per cent	No of times medium used	Acidified per cent.	No of times medium used
Dextrose	77	27	81	11
+ Normal serum	100		100	
Raffinose	37	27	83	12
+ Normal serum	85		100	
Salicin	23	34	23	13
+ Normal serum	97		92	
Mannite	0	30	14	7
+ Normal serum	36		57*	
Inulin	18	16	10	10
+ Normal serum ..	31		100	

* Decolourised

similar media with fresh serum were acidified A complete record of such results necessitated the keeping of extensive tables, for we have recorded growth as well as acidification and the number of hours in which they have appeared Since no attempt has been made at classification we have thought it best to summarise the results in the accompanying table, the point being to demonstrate the effect of fresh serum upon the fermentation reactions

Dextrose would appear to be the most favourable medium in this series (see table) Maltose was used 12 times and was acidified in every case, but with one exception a similar result was obtained with dextrose, so it is not included in the table Salicin, an important medium to those who place reliance on the fermentation tests, was only acidified 8 times out of 34 strains examined, while in every case save one (that of a urinary streptococcus) there was acid production when fresh serum was added None of the strains tested, including those isolated from wounds and two from fæces, acidified mannite alone, but the fresh serum mannite was acidified 11 times out of 30 and decolourised once The favourable influence of the fresh serum was least marked in the case of inulin In two cases however, its addition caused abundant growth with clot formation where no change occurred in the control tubes without fresh serum

The fermentation results may also be shown graphically in the accompanying curves

Pneumococci —Thirteen varieties of this organism were tested and the results are expressed in a similar manner (See table) The numbers tested are insufficient to enable one strictly to compare the results obtained with those among the streptococci So far as they go they agree in the case of dextrose, and also very closely in the case of salicin both with and without fresh serum, the effect of the addition of fresh serum being strongly marked with the latter medium There is a fair difference with raffinose, but the fresh serum inulin was acidified in every case thereby not only differing from the results obtained with the streptococci in this medium, but also demonstrating in a very clear manner its value as a suitable medium for the pneumococcus since Hiss s heated serum inulin was only fermented once and then only when it was inoculated with a definite volume of pus One strain grew in all the sugars without serum as a streptococcus, but in all those with fresh serum as a typical pneumococcus In one instance all media were inoculated with a definite volume of pus, here the results obtained from the media with and without serum more closely corresponded than in any other instance owing to the presence of serum in the pus

Staphylococci —The fresh serum makes very little difference to the fermentation reactions of the staphylococcus aureus the ordinary sugars being acidified with great readiness but when grown in fresh serum salicin there is frequently an inhibition of acidity compared with the plain salicin although the growth may be considerable and autolysis marked

The Effect of Culture in Fresh Serum upon the Variability of Streptococci and Pneumococci towards the Fermentation Tests

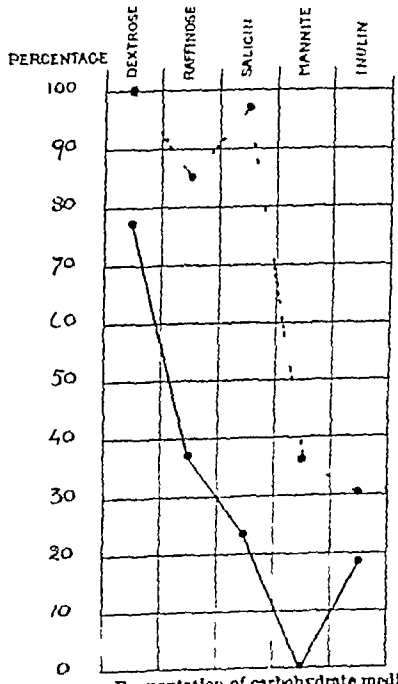
Ainley Walker[9] showed that the continual culture of streptococci in various media for periods up to two years had the effect of altering their behaviour to some of the fermentation reactions, and he obtains a similar result after successive passages through a mouse He concludes as a result of his observations that the fermentation reactions are largely dependent upon the environment in which the organisms have been growing

Our results tend to confirm these conclusions since growth in a fresh serum medium in so short a period as 24 hours completely altered the fermentation reactions in those cases where this point was tested We have only recognised this fact recently, so that the evidence is not extensive although so very definite and unmistakable that one is led to the conclusion that further experiments in this direction can only confirm our present results

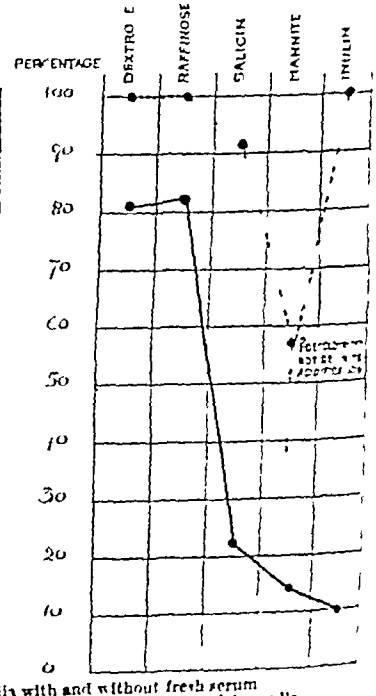
Streptococci —1 A subculture from nasgar neither grew in nor acidified salicin in 48 hours The same organism after subculture in fresh undiluted human serum grew freely in this medium with abundant acid production in 24 hours The other reactions remained the same

2 This was isolated from a case of ulcerative endocarditis

CURVE 1 —*Streptococci, 34 strains*



CURVE 2 —*Pneumococci, 13 strains*



Fermentation of carbohydrate media with and without fresh serum
Dotted lines represent fresh-serum media s raight lines represent plain media

In this and in subsequent subcultures abundant growth occurred in all the fresh serum carbohydrate media, and acid was produced in all but fresh serum mannite On the other hand there was considerable variation in the fermentation of the plain carbohydrate media in three subcultures Fir

[9] Proc. Roy Soc B vol lxxxv 1-12

subculture from *nasar* Salicin acidified, dextrose, raffinose and mannite unaffected Two of the fresh serum media were chosen from which to make subcultures The fresh-serum salicin showed vigorous chain formation and the individual cocci stained perfectly, while the growth in the fresh serum mannite, though abundant, showed considerable autolysis Second subcultures from *fresh serum salicin* Raffinose and salicin acidified dextrose and mannite showed no change Third subculture from *fresh serum mannite* Dextrose acidified, salicin, raffinose and mannite unchanged.

Pneumococci —1. Isolated from an empyema. The pneumococcus while growing freely in the fresh serum media did not acidify salicin but a subculture from fresh serum salicin readily acidified the plain medium

2 An example of variability after animal passage Isolated from a blood culture, it had no effect on dextrose, raffinose, salicin mannite or inulin, but in the fresh serum media it was growing strongly and the fresh serum inulin was clotted. This culture was passed through a mouse, and the pneumococcus isolated from the heart blood acidified dextrose and raffinose, but still had no effect on salicin and no more effect on the heated serum inulin than on the first occasion.

It is reasonable to suppose, therefore, that cultures in fresh serum media will be proved to have an effect upon the variability both of streptococci and pneumococci equal to if not more than that effected by animal passage, and it would be an interesting point to compare the two with the same organism

The general inference is that the addition of fresh serum to carbohydrate media, although in itself possessing a potential alkalinity, so favours the growth of streptococci and pneumococci as to enable them to acidify those carbohydrates in which they appear to produce little effect in the absence of serum It would seem that this influence cannot be merely due to the physical properties of the serum preventing the diffusion of the inhibitory carbohydrate medium among the growing organisms, nor can it be ascribed to the protein content or the reaction of the serum, because such influence is not similarly exerted by heated serum, as shown by Hiss's heated serum inulin.

It might be suggested that the presence of dextrose in normal fresh serum might account for the acid production, but in the first place it is in very small amount (0 1 per cent.) and the acid production is out of all proportion to the quantity present and again, fermentation does not always occur in the fresh serum media as it should if the dextrose in the serum were responsible for the effect. We must assume, therefore that there is some fresh principle akin to the vitamines which is necessary to vigorous growth in the case of these organisms and that there is some connexion between vigorous growth and the capacity to ferment certain carbohydrates although there is nothing at present to prove that such connexion is absolute or direct

It is not our intention to make any attempt to enter into the controversy as to the value or reliability of Gordon's fermentation tests in affording a means of classification of the streptococci but rather to suggest that the employment of fresh serum media may assist in solving the problem of their variability If it is to be assumed according to Gordon[1] with the modifications suggested by Andrewes and Horder[2] that there are certain fixed types or predominant groups of streptococci connected by a number of variants then the culture with fresh serum may do away with the large number of such variants which have hitherto obscured any sharp distinctions between the types variants which may possibly be due to the vigour of the growth under examination If on the other hand the hypothesis stated by Ainley Walker[3] on the evidence of his own experiments and those of others is correct—namely that there is only one streptococcus pathogenic to man and that the difference in the power of certain strains to ferment any given carbohydrate is due to the adaptation to a particular previous environment—then the presence of fresh serum may also eliminate finer cultural distinctions by providing an environment which as our experiments show is the most favourable hitherto obtained under artificial conditions

[1] Gordon THE LANCET 1915 vol II p 1410
[2] Andrewes and Horder THE LANCET 1916 vol II pp 705 707 852
[3] Ainley Walker Loc cit

Summary

The addition of normal fresh human blood serum to artificial media in the culture of micro-organisms has the following effects —

1. It provides a most favourable medium for growth where culture under artificial conditions may otherwise fail.

2. It greatly increases the amount of growth in those media to which it has been added compared to those prepared without it.

3 It stimulates the growth of pathogenic organisms as opposed to non pathogenic.

4 It prolongs the life of organisms which are prone to die out under artificial conditions as shown in the case of the meningococcus

5 It greatly facilitates the culture of the diphtheria bacillus and in its combination with different media helps to illustrate all aspects of the morphology of this organism

6 It exercises considerable influence upon other organisms of variable morphology tending in the case of the pneumococci to reproduce the true type as found in the body fluids

7 It profoundly alters the fermentation reactions of the streptococci and pneumococci, tending to obliterate the finer differences between types or the differences due to particular environment

THREE CASES OF ENTAMŒBA HISTOLYTICA INFECTION TREATED WITH EMETINE BISMUTH IODIDE

BY GEORGE C LOW, M.A. ST AND, M D EDIN
ASSISTANT PHYSICIAN AND LECTURER, LONDON SCHOOL OF TROPICAL MEDICINE
AND
CLIFFORD DOBELL, M.A.
LECTURER IN PROTISTOLOGY IMPERIAL COLLEGE OF SCIENCE.

(*Report to the Medical Research Committee*)

IN THE LANCET of July 29th last, Dr H. H. Dale has called attention to the fact that emetine hydrochloride given subcutaneously fails to effect a complete cure in a number of cases of intestinal amœbiasis He emphasises the fact that after treatment some patients cease, for a time, to pass cysts and then relapse and become chronic carriers of Entamœba histolytica, while in others prolonged treatment with the usual 1-grain dose given daily for 12 days in succession fails entirely to arrest the passage of cysts American workers and others have also noted this, and lately Mr Geoffrey Paget and Mr Redman King have specially drawn attention to it in soldiers treated in the Graylingwell Military Hospital at Chichester In some of these, however, apparently successful results have been obtained by the subsequent employment of a new emetine compound emetine bismuth iodide Dr Dale narrates some of these successes in his paper and owing to his kindness we have been able to employ the new compound in the treatment of a series of patients suffering from entamœbiasis Three of these are of special interest, as they represent different types of entamœbic infection, and two of them had never been previously treated with emetine The details of these three individuals are as follows

CASE 1 —*Acute amœbic dysentery*

History —The patient a native was born in Bombay and had spent most of his life at sea. As regards previous illnesses he stated that he had always been healthy, never having had anything important the matter with himself before Was quite well when the ship on which he was working left Bombay Shortly after this however he developed a severe pain in the abdomen with looseness of the bowels This was followed by severe purging 12 to 15 stools a day and then by the passage of blood and mucus The condition gradually became worse, so when the ship arrived in London he was sent into the Seamen's Hospital at the London School of Tropical Medicine On the voyage only palliative treatment was adopted no emetine having been administered.

Examination —Clinically the case was typical of acute amœbic dysentery, the stools consisting of nothing but shreds of mucous membrane with blood and small sloughs Microscopic examination revealed the presence of many typical acute amœbæ Entamœba histolytica Pressure over

the colon elicited great pain and tenderness, this being most marked over the region of the sigmoid There was no rise of temperature, the patient was thin, but not emaciated, his other systems were normal

Treatment —This was begun at once on July 6th, 3 grains of emetine bismuth iodide being administered that evening This caused no discomfort or sickness A similar dose was given next night, and so on until 12 had been taken consecutively The amœbæ disappeared rapidly, none being found after the third dose, and all blood and mucus had disappeared after the fourth Towards the end of the treatment a distinct diarrhœa appeared, but this was disregarded It improved a few days after the last dose, and up to the time of writing this paper the patient has convalesced in the usual manner Table I shows the results of the treatment at a glance

TABLE I

	July 1916																		
Date	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	24	27	31
Treatment	E	E	E	E	E	E	E	E	E	E	E	E							
E hist	+++	++	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–		–

E = Emetine bismuth iodide grs iii +++ = Very heavy infection. ++ = Medium infection + = Scanty – = Negative E hist = Entamœba histolytica, amœboid stage

CASE 2 *Convalescent carrier of long standing*

History —The patient, an Englishman went to India in 1898 and left there in 1909 His heath on the whole was good He suffered from malaria at times, had enteric in 1906, had dysentery in 1908, and becoming neurasthenic after that was sent home the following year and did not return From that time till 1914 he kept more or less fit, but he several times had looseness of the bowels and some distinct abdominal discomfort On Dec 25th 1914, he got a chill, and with this a return of pain and tenderness in the abdomen and slight irregularity of the bowels. An examination of the stools at the London School of Tropical Medicine was made and encysted amœbæ, E histolytica, were found A course of emetine was prescribed one injection every day for a fortnight (dose probably ½ or ¾ a grain), and the cysts then were said to have disappeared During the summer of 1915 he was not well, and towards the autumn had pain again and signs of dysentery, three or four stools a day with a considerable amount of mucus He was not on a strict diet, and was taking alcohol

Examination —He was first seen by one of us on Dec 20th, 1915, and then presented nothing specially abnormal, no pain or tenderness over the colon, and no cysts in the stools He was put on a strict diet and all alcohol was stopped Further examinations of the stools during January and February, 1916, showed no abnormalities, but in July, as he was not feeling well a further search demonstrated the presence of E histolytica cysts again At this time he complained chiefly of what he described as gnawing pains in the abdomen, but there was no diarrhœa, the stools as a rule being one a day only They were of a somewhat soft consistence, of an ordinary colour, and did not look in any way abnormal

Treatment —This was begun on July 19th, 3 grains of the emetine bismuth iodide being administered on that evening and subsequently until 12 consecutive doses had been administered In this instance the drug was not very well borne, as a rule the patient vomiting every night after the administration This was not violent, however, and he was able to take his breakfast next morning as usual Cysts disappeared after the fourth dose A certain degree of diarrhœa was present after the seventh dose, but not of sufficient amount to interfere seriously with the treatment Table II shows the results of the treatment

TABLE II

	1915			July 1916																
	Dec	Jan	Feb																	
Date	20	13	23	4	11	14	19	20	21	22	23	24	25	26	27	28	28	31	31
Treatment							E	E	E	E	E	E	E	E	E	F	E	E	F
E hist	–	–	–	–	+	+	–	–	–	–	–	–	–	–	–	–	–		–
E hist cysts	–	–	–	+	–	+	+	+	–	–	+	+	–	–	–	–	–		–

E = Emetine bismuth iodide grs iii +++ = Heavy infection ++ = Medium infection – = Negative E hist = Entamœba histolytica amœboid stage E hist cysts = Entamœba histolytica cysts

CASE 3 —*Contact carrier case*

History —The patient was an Englishman who had never been out of Europe This is a specially interesting case as the subject only discovered accidentally that he was passing E histolytica cysts, and never at any time had had any signs of dysentery, diarrhœa, or other irregularity of the bowels He came to learn the routine methods of examination of human fæces for protozoa with one of us (C D), and upon examining his own fæces about three months later discovered what he believed to be cysts of E histolytica He therefore brought these to one of us (C D), who verified the diagnosis It is not certain where he acquired his infection, but everything points to his having picked it up in the laboratory whilst engaged in examining stools containing cysts of E histolytica This is the more likely as it is now five years since he was out of England Previously to this he had visited Italy (northern), the Riviera, Switzerland and the south west of France—places where amœbic dysentery as far as we are aware, is not endemic

Examination —Apart from a suspicion of tenderness over the transverse colon, there was nothing of interest to note There was no raised temperature, no pain over the liver and the stools were normal Cysts could not always be found in the fæces

Treatment —Treatment was begun on the evening of June 14th, emetine bismuth iodide, grains iii being given Though causing no actual vomiting, the drug disagreed with him causing nausea and diarrhœa Subsequent doses on the 15th, 16th, 17th, and 18th increased these symptoms to such an extent that the treatment had then to be abandoned The cysts disappeared from the stools after the fourth dose and have not been found since Table III shows the results of the treatment and stool examinations

TABLE III

	June 1916													July									
Date	9	14	15	16	17	18	19	20	22	23	24	26	28	30	3	5	7	8	10	13	15	18	21	24	23
Treatment		E	E	E	E	E																			
E. hist cysts	+	++	+	+	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

E = Emetine bismuth iodide grs iii + = Positive result, small infection ++ = Moderate infection. – = Negative result.

It may be noted here that the three cases just described all appear to be cases of infection with Entamœba histolytica alone No other protozoa have been found in any of them

If one studies the histories of these three cases it will be seen that this new emetine compound given by the mouth has been equally efficient to emetine by the needle, or to the old ipecacuanha treatment in the case of acute dysentery reported (Case 1) The amœbæ disappeared rapidly as did also the blood and mucus, together with the pain and other symptoms Whether or not a complete sterilisation has been effected can only be determined by prolonged examinations conducted over a long period of time, but, unfortunately, this will not be possible in this case, as the man eventually will have to return to his ship and go abroad again

Case 2 is just the type of case that one expects to do badly when treated by the ordinary 1 grain doses of emetine subcutaneously It is now over seven years since the patient acquired his infection and during that time treatment with comparatively small doses of emetine had been employed, a procedure which apparently tends to produce a resistant strain of amœbæ with the subsequent passage of cysts The emetine bismuth iodide quickly got rid of his cysts, and though it is too early to say yet whether this disappearance is permanent, from what one learns in other cases the result is distinctly hopeful Of course one cannot say that, in this instance, emetine subcutaneously in the ordinary way would not have produced the same effect That it can do so in some instances is undoubted as two cases published by one of us in the *Journal of Tropical Medicine and Hygiene* (Feb 1st 1916) have now been free from cysts, the one for one year and two months the other for over six months after one course of treatment with 1 grain doses of emetine hydrochloride subcutaneously on 12 successive days

Others have studied cases for shorter periods of time than these with similar results, but there are nevertheless many other cases known—some of them to us personally—where emetine injected subcutaneously has failed to make any

difference to the passage of cysts at all. It is for these cases that a new form of treatment is required.

Case 3 probably had little ulceration and had only a small infection, but even granting this, only five 3-grain doses of the new compound seem to have completely sterilised him, no cysts having been found now for six weeks It is, of course, possible that emetine administered hypodermically in this case also might have produced an equally satisfactory result. Nevertheless we may note that two other similar contact carriers who came under the observation of one of us failed to get rid of their infections after repeated 1 grain injections of emetine hydrochloride hypodermically (One of these had 13, the other 14 grains of emetine altogether)

It is possible that in carriers the amœbæ are living in pockets in the bowel, as Dr Dale suggests and that the emetine when injected never reaches them. This is certainly borne out by the fact that the exhibition of the drug by the mouth—either the whole drug, ipecacuanha, as advised by American workers, or the new compound emetine bismuth iodide—seems to clear cases quickly which have resisted all attempts by the needle.

One point brought out by the cases we have treated so far is that this new emetine compound produces much more disagreeable symptoms than emetine hydrochloride given by the needle. Some of these recall to one's memory the old ipecacuanha days, though the symptoms after administration of the double iodide are in many cases far less severe. Sickness is fairly common, many of the patients feeling distinctly unwell during and immediately after their treatment while others are purged. But it must be remembered that the latter is not uncommon even when the needle is employed.

So far the drug has been given in a single dose of 3 grains —this representing a little more than 1 grain of emetine—once a day in the evenings with the last meal and never on an empty stomach, as was customary with ipecacuanha. The reason for this is indicated in Dr Dale's paper already quoted. It was thought that it might be better to administer the drug three times a day in 1 grain doses, but in some cases in which this treatment has been tried the results so far as they have yet been ascertained, do not seem to have been appreciably different from those just described. When practicable it is best to keep the patient in bed during treatment. In cases where much sickness is produced it might be expedient to diminish the daily dose, but as this might also diminish the efficacy of the treatment it is clearly better that the patient should temporarily suffer than that his amœbæ should permanently persist.

In one of our patients (No 3) the drug had to be stopped after five doses had been given and we have now a letter from another patient saying that five doses have so upset him—nausea, vomiting and diarrhœa—that he cannot continue the treatment. We describe these symptoms because we think them important but on the other hand it is only fair to say that many people can take the full course of 36 grains with no untoward results The removal of the amœbæ and their cysts is however so much more important for the patient—not to mention the public at large—than the temporary inconvenience that this removal may cause him that too much emphasis should not be laid upon what has been after all the only drawback in our experience to the use of the drug

Evidence derived from our own cases together with that adduced by Dr Dale has convinced us that emetine bismuth iodide is far more efficacious than emetine hydrochloride given hypodermically in removing the cysts from the fæces of chronic carriers and in our opinion it should henceforward be generally employed in such cases—at all events until a more ideal treatment is forthcoming

---

TUBERCULOSIS AND THE WORKING MAN.—We learn from the *Derby Daily Telegraph* that an important decision was reached by the High Court of Foresters at Cheltenham last week After a long discussion it was decided that members receiving benefit while suffering from tuberculosis might with special consent of the court do open air work prescribed for them by a medical practitioner Some delegates expressed their anxiety lest the order might result in the exploitation of sweating The experiment will be watched with keen interest by all those interested in the "after-care" of tuberculous patients

THE INTRAVENOUS INJECTION OF OXYGEN GAS AS A THERAPEUTIC MEASURE

BY F W TUNNICLIFFE, M D LOND,
PHYSICIAN KING'S COLLEGE HOSPITAL LECTURER ON THERAPEUTICS KING'S COLLEGE HOSPITAL MEDICAL SCHOOL

AND

G F STEBBING, M B, B S LOND,
ASSISTANT MEDICAL OFFICER, LAMBETH INFIRMARY

FOR some time it has been the practice of one of us (Tunnicliffe) when using saline venous injections, either simple nutrient (glucose and lecithin) or medicated, to use not simple saline solution but oxygenated saline solution We are quite aware that the quantity of oxygen introduced by this method is very small as compared with the oxygen requirement of the subject, nevertheless cyanosis is rapidly alleviated by the use of such solutions and we have observed that more rapid and generally better results are also produced by such (oxygenated) solutions *qua* their nutrient and medicinal content than by similar solutions, the basis of which is simple physiological saline solution. These results are of course, in accord with those obtained in perfusion experiments in the laboratory Several months ago when one of us (Tunnicliffe) was talking this matter over with Dr F S Locke we were made aware of the interesting fact that when pure oxygen gas is introduced directly into the veins of animals the latter do not necessarily succumb to gas embolism.

Our interest in this matter was further stimulated by reading the accounts of the respiratory phenomena following the inhalation of the poisonous gas to which our soldiers have been exposed in the present war We understand that in these cases the inhalation of oxygen is both difficult and relatively inefficacious Difficult because of the constant cough and expectoration, inefficacious, because of the copious secretion present in the pulmonary bronchioles and alveoli. Apart from these cases, the occurrence of which is now to a great extent happily prevented by the use of appropriate helmets there must occur to clinicians instances in which the relief by the intravenous injection of oxygen of an acute cyanosis either unrelieved or from the nature of the case impossible to relieve by the inhalation of the gas might be of very considerable therapeutic value These considerations and the results we had already observed from the intravenous injection of saline solutions holding necessarily relatively small quantities of oxygen in solution encouraged us to hope that we should be able, without risk to the patient to introduce into the veins a quantity of oxygen gas sufficient to exert a definite therapeutic effect and thus both to relieve a cyanosis already present and to prevent its occurrence under conditions which would otherwise produce it

Earlier Investigations

Oxygen gas was discovered by Priestley in 1775 and as early as 1811 Nysten[1] made a most interesting series of experiments upon the effect of the injection of various gases including oxygen into the veins of dogs His method generally was to introduce the gas intermittently into the jugular vein in quantities of from 20 to 50 c c at a time repeating the injections after intervals of time varying from 2 to 15 minutes As a fact he found that if he injected from 100 to 150 c c. of oxygen gas into the venous system of a moderate sized dog in doses of 20 c c at a time allowing intervals of from 3 to 4 minutes between each injection, the animal seemed entirely unaffected by the injections In a further experiment, however in which he injected 200 c.c. in doses from 30 to 40 c.c. at a time and made the last two injections at 1 minute's interval the animal died. Nysten records the occurrence of loud gurgling cardiac murmurs after the injection and also that the whole blood was of arterial colour Some further experiments upon the result of the injection of nitrogen into the jugular veins of dogs made by this observer are also of considerable interest to us (*vide infra*) He injected into the vein of a dog weighing

[1] Nysten Recherches de Physiologie et de Chemie Pathologique, Paris, 1811

from 7 to 8 kg quantities of nitrogen varying from 60 to 100 c.c in doses of 20 c c at a time Speaking generally, two injections at from 1 to 3 minutes' interval were not attended with any serious result

Demarquay[2] made a similar series of experiments, and, in general, confirmed Nysten's results He says that he is convinced that it is possible by making use of small doses to inject into the circulation considerable quantities of oxygen gas without producing any grave symptoms In spite of this statement, however, Demarquay did kill an animal by the injection of oxygen gas into its jugular vein Unfortunately, he gives neither the weight of the animal nor the quantity of oxygen He made, however, the interesting observation that in no case did the venous blood of the injected animal become exactly like arterial, but that for some time after the injection of the oxygen the edges of artificially made wounds remained red and vascular From this latter fact he drew the conclusion that oxygen injected into the veins remains at least in part fixed, and is not entirely used up in respiration This observation is of interest to us with regard to three of our cases (*vide infra*) in which the beneficial result of the intravenous injection of oxygen was certainly more permanent than could apparently be explained by the mere relieving of the cyanosis

Gaertner[3] made a series of observations upon the effect of introducing gaseous oxygen into the veins of dogs He used a continuous stream of oxygen He observed the occurrence of loud cardiac murmurs during the administration of gas In the animals which died he found bubbles of oxygen in the right ventricle, but never observed any in the left He states specifically that the flow of blood containing oxygen bubbles does not obstruct the circulation through the lungs He found that if means were used to greatly limit the respiratory oxygen the symptoms of asphyxia were much delayed and alleviated by the simultaneous administration of intravenous oxygen He attaches great importance to the stream of oxygen being slow and continuous, and states that any dangerous symptoms which may occur may at once be relieved by discontinuing the administration His work, he admits, was hurried in order that he "might claim priority" He suggests that intravenous oxygen might be used in the case of man, but he specifically states that he can make no suggestion with regard to method or rate of flow He quotes Nysten and Demarquay His observations were entirely confined to dogs and he adds very little to the work of these observers except that he used a continuous stream instead of intermittent injections

Stuertz[4] made an elaborate series of experiments upon the respiratory exchange occurring in dogs under the influence of the continuous intravenous injection of oxygen His conclusions are that the oxygen introduced in this way is almost entirely used for respiratory purposes, and that a considerable proportion of the oxygen necessary for respiration can be introduced in this way In his opinion the oxygen is best introduced not continuously but intermittently He disagrees with many of Gaertner's conclusions, and from his experiments, which were made on dogs confirms the results of other observers with regard to the absence, or at any rate infrequency, of gas embolism

Mariani,[5] using pure oxygen and an elaborate apparatus, though less elaborate than that of Stuertz and Gaertner, introduced oxygen into the dorsalis pedis vein in man The case was a dying phthisical subject In half an hour 80 c c were given then a pause, and then 40 c c in a quarter of an hour The pulse and respiration of the patient were improved The injection was not repeated, and the patient died next day

In a recent German text-book[6] the author in a footnote makes the remark that oxygen can be introduced directly into the veins in man as a treatment for cyanosis of all kinds No reference to literature is given and no directions with regard to quantity or technique With this conclusion we may say at once we totally disagree Its seems to us a flagrant instance of German book making, and likely to have as a result most serious consequences

[2] Demarquay Essai de Pneumatologie Medicale Paris 1856 p 637 et seq

[3] Gaertner Wiener klin Woch 1902 p 691

[4] Stuertz Zeit für diet und physik. Therapie 1904 p 67

[5] Mariani Riforma Medica, 1902, p 194

[6] Schwalbe: Handbuch der therapeutischen Technik 1915

Technique

Our own observations were made exclusively on man We felt that in so far as the conditions calling for the intravenous administration of oxygen would be urgent ones the apparatus required would be simple We therefore dispensed with the elaborations used for the experiments upon animals and employed the following An ordinary cylinder of Brinn's oxygen, to which was attached a Brinn's endurance regulator A convenient length of pressure tubing connected at one end to the regulator at the other to a piece of bent glass tubing which was drawn out at the end, and passed through one of its necks to the bottom of a two-necked wash bottle From a similarly bent piece of glass tubing passing for about an inch through the other neck of the wash bottle, a further length of pressure tubing passed and was at its end attached to a fine hollow needle This latter piece of pressure tubing was broken by the insertion of a glass T piece To the cross limb of the T piece a small length of pressure tubing was fixed, which could be closed or opened by a screw clip The fine hollow needle was introduced directly into the vein after the latter had been carefully dissected out. The wash bottle was filled with a 2 per cent sodium carbonate solution, before commencing the injection this was blown out by means of passing a stream of oxygen through the tubing and cannula, leaving just sufficient in the bottle to wash any further gas emerging from the cylinder

The regulator was now set by means of the thumbscrew so that 60 bubbles passed through the wash bottle per minute The volume of gas emerging from the cannula corresponding to a given number of bubbles passing through the wash bottle per minute was ascertained previously to the use of any regulator or wash bottle or cannula by means of an ordinary eudiometer At the end of any given administration the volume of gas passing through the cannula was also tested by the same means In this way, by taking the time of the injection, we were able to estimate the amount of oxygen that had been given If, during the administration, we desired to increase or diminish the rate we counted the bubbles passing through the wash bottle, took the time for which they were given, and subsequently estimated the amount of gas emerging from the cannula with the same rate of bubbles passing through the wash bottle

We found it convenient to use the cross limb of the T piece, inserted into the tube between the wash bottle and the cannula, as a kind of by pass When we increased the rate of flow we partially opened the screw clip connected by the pressure tubing with the cross-limb of the T piece and closed it gradually when the desired rate was established By this means any sudden rush of oxygen into the vein was prevented, and sufficient oxygen passed during the change of rate to prevent blood clot occurring in the cannula. This latter point we found very important, as from our experience we should say that displacement of a clot is a more fertile source of danger to the patient than introduction of oxygen

Before we began our observations we endeavoured to obtain an absolutely pure oxygen Such oxygen can be obtained, but owing to war conditions we were unable to obtain any The oxygen we actually used, as we have said above, was Brinn's oxygen, this contains, or may contain 1 5 per cent of nitrogen (we believe it is obtained by fractional liquefaction of air) In the light of further knowledge and of Nysten's experiments upon the injection into the veins of pure nitrogen gas we do not think this quantity of nitrogen of any importance The veins we used were numerous The one we eventually found most convenient was one of the small veins on the dorsum of the foot. In our first observation we used two veins simultaneously From the theoretical standpoint we thought this would be advantageous We subsequently found however that we could introduce quite sufficient oxygen to relieve cyanosis by using one cannula only and also that having two cannulæ considerably complicated the technique

Results

The result of our observations is that oxygen gas can be introduced into the veins in quantities from 500 to 1000 c c at the rate of from 600 to 1200 c c per hour Cyanosis and the dyspnœa attending it are rapidly relieved, the rate we usually begin with is 500 c.c per hour The more cyanosed the patient the better is a rapid rate tolerated As the cyanosis is reduced the rate should be diminished

During the administration the pulse should be watched nd the heart auscultated frequently Loud cardiac murmurs ıore allied to stomach or intestinal rumbles in character han to ordinary cardiac murmurs may in fact often do, evelop during the administration These murmurs are not an ndication to stop the administration, but, as a matter f fact, with careful administration they never need occur t all Irregularity in a previously regular pulse or increased rregularity in a previously irregular pulse is an indication to ease the injection This phenomenon, in our experience s preceded by a soft systolic murmur heard over the area of he tricuspid valve and this murmur should be listened for The metallic gurglings described above are almost certainly lue to the gas being churned in the heart The soft systolic murmur on the other hand, and the irregularity of the pulse are probably due to acute dilatation of the right side of the heart

In our experience the best method is to inject the gas for periods of from 10 to 15 minutes with pauses of two or three minutes between injecting during these pauses just enough gas to prevent clotting in the cannula We have only had one case which presented any unfavourable symptoms, and we think they were entirely due to faulty technique in that we increased the rate too rapidly This was our first case and we were using two cannulæ

The patient had been having intravenous oxygen at the rate of 600 c c per hour for more than 20 consecutive minutes We then rapidly doubled the rate The patient was an old man with chronic respiratory disease The cyanosis had been completely relieved before we increased the rate Soon after the increase of rate a soft systolic murmur was heard over the right side of the heart and almost immediately afterwards the pulse became irregular The patient began to yawn and in answer to a question said he felt giddy Shortly afterwards both his hands dropped to his side and his legs became flaccid, and he exhibited an extensor plantar reflex on each side He then appeared to lose himself and made no reply to questions His colour kept good his pulse became no worse, and his respiratory movements were slow but regular The injection was stopped and he was sent back to bed He rapidly revived, and half an hour afterwards he was sitting up in bed quite conscious and comfortable, and the plantar response was flexor on both sides The patient's only complaint was of a slight numbness in his hands and feet This continued with diminished intensity for a day or two and then disappeared The improvement in his colour and breathing lasted some considerable time after the injection and the patient himself maintains that it has lasted ever since

As we related above this is the only case in which we have had any untoward effects at all and we attribute them to a gush of oxygen through both cannulæ upon doubling the rate of injection in a patient who had had oxygen injected continuously for 20 minutes previously and in whom the cyanosis had been completely relieved With regard to the apparently lasting benefit experienced by this patient we may quote two other cases in which also apparently a lasting improvement occurred

One was a case of malignant disease of the mediastinum with pressure upon the roots of both lungs and double pleural effusion This woman was deeply cyanosed, and was the subject of acute attacks of life-threatening dyspnœa which eventually were only very partially relieved by the inhalation of oxygen This patient was treated by intravenous injection of oxygen which was continued for one hour The cyanosis was immediately relieved, and subsequently the dyspnœa attacks were relieved for a week and the patient s condition improved she had much less cyanosis and much less dyspnœa

The second case in which apparently permanent benefit accrued was one of advanced pernicious anæmia This patient was having frequent attacks of dyspnœa upon slight movement in bed and also frequent attacks of vomiting He was given an intravenous injection of oxygen for 40 minutes His attacks of dyspnœa subsequently became less intense and his vomiting less frequent and from then until the present time he has continued to improve His condition before the injection was certainly desperate if not moribund

In our experience the phenomenon to be feared as likely to cause serious symptoms during the intravenous injection of oxygen is dilatation of the heart. The ideal case for reaping benefit from this treatment is one in which the cyanosis and dyspnœa are due to acute respiratory difficulty and in which the heart is fairly healthy We do not think the method is likely to be of benefit in the cyanosis and dyspnœa occurring in cases of morbus cordis in which there is marked degeneration of the myocardium If it seemed desirable to adopt it under such conditions we should suggest that an intravenous injection of digitalin or strophanthin be given first It is in this particular that we disagree most emphatically from the view quoted above from the German text-book that the intravenous injection of oxygen can be used to relieve cyanosis of any kind

The object of this preliminary note is not to indicate the specific pathological conditions in which the intravenous injection of oxygen should be used, but simply to point out that in those cases in which the inhalation of oxygen either cannot be practised or gives inadequate relief the intravenous method of oxygen administration if carefully carried out in accordance with the above directions, is available to the clinician and will give therapeutic results

[1] The patient is now (August 15 th) at a convalescent home

ON THE GLUTEAL FOLD IN SCIATIC NEURITIS

BY HILDRED CARLILL, M A, M D CANTAB, M R C P LOND,

TEMPORARY SURGEON R N NEUROLOGIST R N HOSPITAL, HASLAR PHYSICIAN SEAMEN'S HOSPITAL AND MILLER GENERAL HOSPITAL, GREENWICH ASSISTANT PHYSICIAN WEST END HOSPITAL FOR DISEASES OF NERVOUS SYSTEM, LONDON LECTURER ON MEDICINE LONDON SCHOOL OF CLINICAL MEDICINE

IT is hoped that these notes may serve to call attention to a fact in the diagnosis of sciatic neuritis which does not appear to have received much attention in the text-books It is that the gluteal fold may be very poorly developed in this condition Commonly it is absent altogether, and this may be the case whether the affection is unilateral, bilateral, or part of a multiple peripheral neuritis

Although this observation is original in the sense that the writer noticed the condition for himself without external assistance, it is not claimed that it is novel, nevertheless, a search through the available neurological literature has been unsuccessful in finding any reference to the condition In Gordon s book[1] there are two photographs which show the abolition of the fold, and Turner and Stewart[2] also give a picture which illustrates the condition The first two however are instances of a different affection from that under discussion and in all three there is considerable wasting of the limb, in addition to which there is some flexion of the lower extremity on the affected side No reference can be found in Allbutt and Rolleston s System[3] and neither Oppenheim[4] nor Dana[5] mention it in their text-books In the photograph of a man with sciatica and scoliosis which the former author gives the gluteal folds are well marked

It is well recognised that the gluteal fold is not formed by the lower and medial border of the gluteus maximus, indeed this side of the muscular parallelogram crosses very obliquely the fold of the nates as its fibres pass from above downwards and laterally It is not a little surprising that authors have always been at pains to mention this fact but the writer has found that their reasons for so doing are not quite extinct

The fold depends upon the tension of the fascia and its adherence to the subcutaneous fat the skin being creased when the thigh is extended upon the trunk—namely, in the erect position of the body When the thigh is flexed, either in health or in disease the fold is lost Disappearance of the fold in the absence of any alteration in position of the lower extremities alters the expression of the buttocks The chief action of the gluteus maximus is to extend the hip-joint more especially in movements which require considerable muscular effort.[6] When the thigh is kept flexed as in cases of hip disease for example the muscle atrophies from disuse

It will be recalled that the sciatic nerve is so named only after it leaves the greater sciatic foramen It is composed of two distinct sections common peroneal and tibial (external and internal popliteal) The level at which the main trunk divides into its two component parts varies to a considerable extent

The nerve-supply of the gluteus maximus is by the inferior gluteal nerve and the posterior cutaneous nerve of the thigh (small sciatic) Probably the muscular branch of the latter nerve is part of the former[7] Parr[8] refers to the inferior

from 7 to 8 kg quantities of nitrogen varying from 60 to 100 c c in doses of 20 c c at a time Speaking generally, two injections at from 1 to 3 minutes' interval were not attended with any serious result

Demarquay[2] made a similar series of experiments, and, in general, confirmed Nysten's results He says that he is convinced that it is possible by making use of small doses to inject into the circulation considerable quantities of oxygen gas without producing any grave symptoms In spite of this statement, however, Demarquay did kill an animal by the injection of oxygen gas into its jugular vein Unfortunately, he gives neither the weight of the animal nor the quantity of oxygen He made, however, the interesting observation that in no case did the venous blood of the injected animal become exactly like arterial, but that for some time after the injection of the oxygen the edges of artificially made wounds remained red and vascular From this latter fact he drew the conclusion that oxygen *injected into the veins* remains at least in part fixed, and is not entirely used up in respiration This observation is of interest to us with regard to three of our cases (*vide infra*) in which the beneficial result of the intravenous injection of oxygen was certainly more permanent than could apparently be explained by the mere relieving of the cyanosis

Gaertner[3] made a series of observations upon the effect of introducing gaseous oxygen into the veins of dogs He used a continuous stream of oxygen He observed the occurrence of loud cardiac murmurs during the administration of gas In the animals which died he found bubbles of oxygen in the right ventricle, but never observed any in the left He states specifically that the flow of blood containing oxygen bubbles does not obstruct the circulation through the lungs He found that if means were used to greatly limit the respiratory oxygen the symptoms of asphyxia were much delayed and alleviated by the simultaneous administration of intravenous oxygen He attaches great importance to the stream of oxygen being slow and continuous, and states that any dangerous symptoms which may occur may at once be relieved by discontinuing the administration His work, he admits, was hurried in order that he "*might claim priority*" *He suggests that intravenous* oxygen might be used in the case of man but he specifically states that he can make no suggestion with regard to method or rate of flow He quotes Nysten and Demarquay His observations were entirely confined to dogs and he adds very little to the work of these observers except that he used a continuous stream instead of intermittent injections

Stuertz[4] made an elaborate series of experiments upon the respiratory exchange occurring in dogs under the influence of the continuous intravenous injection of oxygen His conclusions are that the oxygen introduced in this way is almost entirely used for respiratory purposes, and that a considerable proportion of the oxygen necessary for respiration can be introduced in this way *In his opinion the oxygen is best* introduced not continuously but intermittently He disagrees with many of Gaertner s conclusions, and from his experiments, which were made on dogs confirms the results of other observers with regard to the absence, or at any rate infrequency, of gas embolism

Mariani,[5] using pure oxygen and an elaborate apparatus, though less elaborate than that of Stuertz and Gaertner, introduced oxygen into the dorsalis pedis vein in man The case was a dying phthisical subject In half an hour 80 c c were given then a pause, and then 40 c c in a quarter of an hour The pulse and respiration of the patient were improved The injection was not repeated, and the patient died next day

In a recent German text-book[6] the author in a footnote makes the remark that oxygen can be introduced directly into the veins in man as a treatment for cyanosis of all kinds No reference to literature is given and no directions with regard to quantity or technique With this conclusion we may say at once we totally disagree Its seems to us a flagrant instance of German book making, and likely to have as a result most serious consequences

[2] Demarquay: Essai de Pneumatologie Medicale Paris 1856 p 637 et seq

[3] Gaertner: Wiener klin Woch 1902, p 691

[4] Stuertz Zeit für diet und physik Therapie 1904 p 67

[5] Mariani Riforma Medica, 1902, p 194

[6] Schwalbe Handbuch der therapeutischen Technik 1915

Technique

Our own observations were made exclusively on man. felt that in so far as the conditions calling for the in venous administration of oxygen would be urgent ones apparatus required would be simple We therefore dispen with the elaborations used for the experiments upon anim and employed the following An ordinary cylinder of Brit oxygen, to which was attached a Brinn's endurance regula A convenient length of pressure tubing connected at one to the regulator at the other to a piece of bent glass tub which was drawn out at the end, and passed through on its necks to the bottom of a two-necked wash bottle. F a similarly bent piece of glass tubing passing for about inch through the other neck of the wash bottle a fur length of pressure tubing passed and was at its end attac to a fine hollow needle This latter piece of pressure tu was broken by the insertion of a glass T piece To the c limb of the T piece a small length of pressure tubing fixed, which could be closed or opened by a screw clip fine hollow needle was introduced directly into the vein a the latter had been carefully dissected out The wash bo was filled with a 2 per cent sodium carbonate soluti before commencing the injection this was blown out means of passing a stream of oxygen through the tubing cannula, leaving just sufficient in the bottle to wash further gas emerging from the cylinder

The regulator was now set by means of the thumbs so that 60 bubbles passed through the wash bottle minute The volume of gas emerging from the can corresponding to a given number of bubbles passing thro the wash bottle per minute was ascertained previously to use of any regulator or wash bottle or cannula by means o ordinary endiometer At the end of any given adminis tion the volume of gas passing through the cannula was tested by the same means In this way, by taking the of the injection, we were able to estimate the amoun oxygen that had been given If, during the administrat we desired to increase or diminish the rate we counted bubbles passing through the wash bottle, took the tim which they were given, and subsequently estimated amount of gas emerging from the cannula with the s rate of bubbles passing through the wash bottle

We found it convenient to use the cross-limb of T piece, inserted into the tube between the wash bottle the cannula, as a kind of by pass When we increased rate of flow we partially opened the screw clip connecte the pressure tubing with the cross limb of the T piece closed it gradually when the desired rate was establis By this means any sudden rush of oxygen into the vein prevented, and sufficient oxygen passed during the ch of rate to prevent blood clot occurring in the cannula. latter point we found very important, as from our experi we should say that displacement of a clot is a more fe source of danger to the patient than introduction oxygen

Before we began our observations we endeavoured obtain an absolutely pure oxygen Such oxygen ca obtained, but owing to war conditions we were unab obtain any The oxygen we actually used, as we have above, was Brinn s oxygen, this contains, or may con 1 5 per cent of nitrogen (we believe it is obtained by tional liquefaction of air) In the light of further k ledge and of Nysten s experiments upon the injection the veins of pure nitrogen gas we do not think this qua of nitrogen of any importance The veins we used numerous The one we eventually found most conve was one of the small veins on the dorsum of the foot our first observation we used two veins simultaneo From the theoretical standpoint we thought this woul advantageous We subsequently found however tha could introduce quite sufficient oxygen to relieve cyano using one cannula only and also that having two can considerably complicated the technique

Results

The result of our observations is that oxygen gas ca introduced into the veins in quantities from 500 to 1000 at the rate of from 600 to 1200 c c per hour Cyanosis the dyspnœa attending it are rapidly relieved the ra usually begin with is 500 c.c per hour The more cya the patient the better is a rapid rate tolerated As cyanosis is reduced the rate should be diminished

During the administration the pulse should be watched nd the heart auscultated frequently Loud cardiac murmurs ıore allied to stomach or intestinal rumbles in character han to ordinary cardiac murmurs may in fact often do, levelop during the administration These murmurs are not an ndication to stop the administration, but, as a matter of fact, with careful administration they never need occur at all Irregularity in a previously regular pulse or increased irregularity in a previously irregular pulse is an indication to cease the injection This phenomenon, in our experience s preceded by a soft systolic murmur heard over the area of the tricuspid valve and this murmur should be listened for The metallic gurglings described above are almost certainly due to the gas being churned in the heart The soft systolic murmur, on the other hand, and the irregularity of the pulse are probably due to acute dilatation of the right side of the heart

In our experience the best method is to inject the gas for periods of from 10 to 15 minutes with pauses of two or three minutes between injecting during these pauses just enough gas to prevent clotting in the cannula We have only had one case which presented any unfavourable symptoms, and we think they were entirely due to faulty technique in that we increased the rate too rapidly This was our first case and we were using two cannulæ

The patient had been having intravenous oxygen at the rate of 600 c c per hour for more than 20 consecutive minutes We then rapidly doubled the rate The patient was an old man with chronic respiratory disease The cyanosis had been completely relieved before we increased the rate Soon after the increase of rate a soft systolic murmur was heard over the right side of the heart and almost immediately afterwards the pulse became irregular The patient began to yawn and in answer to a question said he felt giddy Shortly afterwards both his hands dropped to his side and his legs became flaccid, and he exhibited an extensor plantar reflex on each side He then appeared to lose himself and made no reply to questions His colour kept good his pulse became no worse, and his respiratory movements were slow but regular The injection was stopped and he was sent back to bed He rapidly revived, and half an hour afterwards he was sitting up in bed quite conscious and comfortable, and the plantar response was flexor on both sides The patient's only complaint was of a slight numbness in his hands and feet This continued with diminished intensity for a day or two and then disappeared The improvement in his colour and breathing lasted some considerable time after the injection and the patient himself maintains that it has lasted ever since

As we related above, this is the only case in which we have had any untoward effects at all and we attribute them to a gush of oxygen through both cannulæ upon doubling the rate of injection in a patient who had had oxygen injected continuously for 20 minutes previously, and in whom the cyanosis had been completely relieved With regard to the apparently lasting benefit experienced by this patient we may quote two other cases in which also apparently a lasting improvement occurred

One was a case of malignant disease of the mediastinum with pressure upon the roots of both lungs and double pleural effusion This woman was deeply cyanosed and was the subject of acute attacks of life threatening dyspnœa which eventually were only very partially relieved by the inhalation of oxygen This patient was treated by intravenous injection of oxygen which was continued for one hour The cyanosis was immediately relieved and subsequently the dyspnœa attacks were relieved for a week, and the patient's condition improved she had much less cyanosis and much less dyspnœa

The second case in which apparently permanent benefit accrued was one of advanced pernicious anæmia This patient was having frequent attacks of dyspnœa upon slight movement in bed, and also frequent attacks of vomiting He was given an intravenous injection of oxygen for 40 minutes His attacks of dyspnœa subsequently became less intense and his vomiting less frequent and from then until the present time he has continued to improve His condition before the injection was certainly desperate if not moribund [7]

In our experience the phenomenon to be feared as likely to cause serious symptoms during the intravenous injection of oxygen is dilatation of the heart The ideal case for reaping benefit from this treatment is one in which the cyanosis and dyspnœa are due to acute respiratory difficulty and in which the heart is fairly healthy We do not think the method is likely to be of benefit in the cyanosis and dyspnœa occurring in cases of morbus cordis in which there is marked degeneration of the myocardium If it seemed desirable to adopt it under such conditions we should suggest that an intravenous injection of digitalin or strophanthin be given first It is in this particular that we disagree most emphatically from the view quoted above from the German text book that the intravenous injection of oxygen can be used to relieve cyanosis of any kind

The object of this preliminary note is not to indicate the specific pathological conditions in which the intravenous injection of oxygen should be used, but simply to point out that in those cases in which the inhalation of oxygen either cannot be practised or gives inadequate relief the intravenous method of oxygen administration if carefully carried out in accordance with the above directions, is available to the clinician and will give therapeutic results

[7] The patient is now (August 15th) at a convalescent home

ON THE GLUTEAL FOLD IN SCIATIC NEURITIS

BY HILDRED CARLILL, M A, M D CANTAB, M R C P LOND,

TEMPORARY SURGEON R N NEUROLOGIST R N HOSPITAL, HASLAR PHYSICIAN SEAMEN'S HOSPITAL AND MILLER GENERAL HOSPITAL, GREENWICH ASSISTANT PHYSICIAN WEST END HOSPITAL FOR DISEASES OF NERVOUS SYSTEM LONDON LECTURER ON MEDICINE LONDON SCHOOL OF CLINICAL MEDICINE

IT is hoped that these notes may serve to call attention to a fact in the diagnosis of sciatic neuritis which does not appear to have received much attention in the text books It is that the gluteal fold may be very poorly developed in this condition Commonly it is absent altogether, and this may be the case whether the affection is unilateral, bilateral, or part of a multiple peripheral neuritis

Although this observation is original in the sense that the writer noticed the condition for himself without external assistance, it is not claimed that it is novel, nevertheless, a search through the available neurological literature has been unsuccessful in finding any reference to the condition In Gordon's book[1] there are two photographs which show the abolition of the fold, and Turner and Stewart[2] also give a picture which illustrates the condition The first two however are instances of a different affection from that under discussion, and in all three there is considerable wasting of the limb, in addition to which there is some flexion of the lower extremity on the affected side No reference can be found in Allbutt and Rolleston's System [3] and neither Oppenheim [4] nor Dana [5] mention it in their text-books In the photograph of a man with sciatica and scoliosis which the former author gives the gluteal folds are well marked

It is well recognised that the gluteal fold is not formed by the lower and medial border of the gluteus maximus, indeed this side of the muscular parallelogram crosses very obliquely the fold of the nates as its fibres pass from above downwards and laterally It is not a little surprising that authors have always been at pains to mention this fact, but the writer has found that their reasons for so doing are not quite extinct

The fold depends upon the tension of the fascia and its adherence to the subcutaneous fat the skin being creased when the thigh is extended upon the trunk—namely in the erect position of the body When the thigh is flexed, either in health or in disease the fold is lost Disappearance of the fold in the absence of any alteration in position of the lower extremities alters the expression of the buttocks The chief action of the gluteus maximus is to extend the hip joint more especially in movements which require considerable muscular effort [6] When the thigh is kept flexed, as in cases of hip disease, for example the muscle atrophies from disuse

It will be recalled that the sciatic nerve is so named only after it leaves the greater sciatic foramen It is composed of two distinct sections common peroneal and tibial (external and internal popliteal) The level at which the main trunk divides into its two component parts varies to a considerable extent

The nerve supply of the gluteus maximus is by the inferior gluteal nerve and the posterior cutaneous nerve of the thigh (small sciatic) Probably the muscular branch of the latter nerve is part of the former [6] Parts refers to the inferior

from 7 to 8 kg quantities of nitrogen varying from 60 to 100 c.c in doses of 20 c c at a time Speaking generally, two injections at from 1 to 3 minutes' interval were not attended with any serious result

Demarquay[2] made a similar series of experiments, and in general confirmed Nysten's results He says that he is convinced that it is possible by making use of small doses to inject into the circulation considerable quantities of oxygen gas without producing any grave symptoms In spite of this statement, however, Demarquay did kill an animal by the injection of oxygen gas into its jugular vein Unfortunately, he gives neither the weight of the animal nor the quantity of oxygen He made, however, the interesting observation that in no case did the venous blood of the injected animal become exactly like arterial, but that for some time after the injection of the oxygen the edges of artificially made wounds remained red and vascular From this latter fact he drew the conclusion that oxygen injected into the veins remains at least in part fixed, and is not entirely used up in respiration This observation is of interest to us with regard to three of our cases (*vide infra*) in which the beneficial result of the intravenous injection of oxygen was certainly more permanent than could apparently be explained by the mere relieving of the cyanosis

Gaertner[3] made a series of observations upon the effect of introducing gaseous oxygen into the veins of dogs He used a continuous stream of oxygen He observed the occurrence of loud cardiac murmurs during the administration of gas In the animals which died he found bubbles of oxygen in the right ventricle, but never observed any in the left He states specifically that the flow of blood containing oxygen bubbles does not obstruct the circulation through the lungs He found that if means were used to greatly limit the respiratory oxygen the symptoms of asphyxia were much delayed and alleviated by the simultaneous administration of intravenous oxygen He attaches great importance to the stream of oxygen being slow and continuous, and states that any dangerous symptoms which may occur may at once be relieved by discontinuing the administration His work, he admits, was hurried in order that he "might claim priority" He suggests that intravenous oxygen might be used in the case of man but he specifically states that he can make no suggestion with regard to method or rate of flow He quotes Nysten and Demarquay His observations were entirely confined to dogs, and he adds very little to the work of these observers except that he used a continuous stream instead of intermittent injections

Stuertz[4] made an elaborate series of experiments upon the respiratory exchange occurring in dogs under the influence of the continuous intravenous injection of oxygen His conclusions are that the oxygen introduced in this way is almost entirely used for respiratory purposes, and that a considerable proportion of the oxygen necessary for respiration can be introduced in this way In his opinion the oxygen is best introduced not continuously but intermittently He disagrees with many of Gaertner's conclusions, and from his experiments, which were made on dogs, confirms the results of other observers with regard to the absence, or at any rate infrequency, of gas embolism

Mariani,[5] using pure oxygen and an elaborate apparatus, though less elaborate than that of Stuertz and Gaertner, introduced oxygen into the dorsalis pedis vein in man The case was a dying phthisical subject In half an hour 60 c c were given then a pause and then 40 c c in a quarter of an hour The pulse and respiration of the patient were improved The injection was not repeated, and the patient died next day

In a recent German text-book[6] the author in a footnote makes the remark that oxygen can be introduced directly into the veins in man as a treatment for cyanosis of all kinds No reference to literature is given and no directions with regard to quantity or technique With this conclusion we may say at once we totally disagree Its seems to us a flagrant instance of German book making, and likely to have as a result most serious consequences

[2] Demarquay Essai de Pneumatologie Medicale Paris 1866 p 637 et seq

[3] Gaertner Wiener klin Woch 1902, p 691

[4] Stuertz Zeit für diet und physik. Therapie 1904 p. 67

[5] Mariani Riforma Medica, 1902, p 194

[6] Schwalbe Handbuch der therapeutischen Technik 1915

Technique

Our own observations were made exclusively on man. We felt that in so far as the conditions calling for the intravenous administration of oxygen would be urgent ones the apparatus required would be simple We therefore dispensed with the elaborations used for the experiments upon animals and employed the following An ordinary cylinder of Brinn's oxygen, to which was attached a Brinn's endurance regulator A convenient length of pressure tubing connected at one end to the regulator at the other to a piece of bent glass tubing which was drawn out at the end, and passed through one of its necks to the bottom of a two-necked wash bottle From a similarly bent piece of glass tubing, passing for about an inch through the other neck of the wash bottle a further length of pressure tubing passed and was at its end attached to a fine hollow needle This latter piece of pressure tubing was broken by the insertion of a glass T piece To the cross limb of the T piece a small length of pressure tubing was fixed, which could be closed or opened by a screw clip The fine hollow needle was introduced directly into the vein after the latter had been carefully dissected out The wash bottle was filled with a 2 per cent sodium carbonate solution, before commencing the injection this was blown out by means of passing a stream of oxygen through the tubing and cannula, leaving just sufficient in the bottle to wash any further gas emerging from the cylinder

The regulator was now set by means of the thumbscrew so that 60 bubbles passed through the wash bottle per minute The volume of gas emerging from the cannula corresponding to a given number of bubbles passing through the wash bottle per minute was ascertained previously to the use of any regulator or wash bottle or cannula by means of an ordinary eudiometer At the end of any given administration the volume of gas passing through the cannula was also tested by the same means In this way, by taking the time of the injection, we were able to estimate the amount of oxygen that had been given If, during the administration we desired to increase or diminish the rate we counted the bubbles passing through the wash bottle, took the time in which they were given, and subsequently estimated the amount of gas emerging from the cannula with the same rate of bubbles passing through the wash bottle

We found it convenient to use the cross limb of the T piece, inserted into the tube between the wash bottle and the cannula, as a kind of by pass When we increased the rate of flow we partially opened the screw clip connected by the pressure tubing with the cross limb of the T piece and closed it gradually when the desired rate was established By this means any sudden rush of oxygen into the vein was prevented, and sufficient oxygen passed during the change of rate to prevent blood clot occurring in the cannula. This latter point we found very important, as from our experience we should say that displacement of a clot is a more fertile source of danger to the patient than introduction of oxygen

Before we began our observations we endeavoured to obtain an absolutely pure oxygen Such oxygen can be obtained, but owing to war conditions we were unable to obtain any The oxygen we actually used, as we have said above was Brinn's oxygen, this contains, or may contain 1 5 per cent of nitrogen (we believe it is obtained by fractional liquefaction of air) In the light of further knowledge and of Nysten's experiments upon the injection into the veins of pure nitrogen gas we do not think this quantity of nitrogen of any importance The veins we used were numerous The one we eventually found most convenient was one of the small veins on the dorsum of the foot In our first observation we used two veins simultaneously From the theoretical standpoint we thought this would be advantageous We subsequently found however, that we could introduce quite sufficient oxygen to relieve cyanosis by using one cannula only and also that having two cannulas considerably complicated the technique

Results

The result of our observations is that oxygen gas can be introduced into the veins in quantities from 500 to 1000 c c at the rate of from 600 to 1200 c c per hour Cyanosis and the dyspnœa attending it are rapidly relieved, the rate we usually begin with is 500 c c per hour The more cyanotic the patient the better is a rapid rate tolerated As the cyanosis is reduced the rate should be diminished

During the administration the pulse should be watched ıd the heart auscultated frequently Loud cardiac murmurs ore allied to stomach or intestinal rumbles in character ıan to ordinary cardiac murmurs may in fact often do, ıevelop during the administration These murmurs are not an ıdication to stop the administration, but, as a matter fact, with careful administration they never need occur ; all Irregularity in a previously regular pulse or increased regularity in a previously irregular pulse is an indication to ıase the injection This phenomenon, in our experience preceded by a soft systolic murmur heard over the area of ıe tricuspid valve and this murmur should be listened for he metallic gurglings described above are almost certainly ue to the gas being churned in the heart The soft systolic ıurmur on the other hand, and the irregularity of the ulse are probably due to acute dilatation of the right side f the heart

In our experience the best method is to inject the gas for eriods of from 10 to 15 minutes with pauses of two or three ıinutes between injecting during these pauses just enough as to prevent clotting in the cannula We have only had ıne case which presented any unfavourable symptoms, and ve think they were entirely due to faulty technique in that ve increased the rate too rapidly This was our first case ınd we were using two cannulæ

The patient had been having intravenous oxygen at the ıate of 600 c c per hour for more than 20 consecutive minutes We then rapidly doubled the rate The patient was an old man with chronic respiratory disease The cyanosis had been completely relieved before we increased the rate Soon after the increase of rate a soft systolic murmur was heard over the right side of the heart and almost immediately afterwards the pulse became irregular The patient began to yawn and in answer to a question said he felt giddy Shortly afterwards both his hands dropped to his side and his legs became flaccid, and he exhibited an extensor plantar reflex on each side He then appeared to lose himself and made no reply to questions His colour kept good his pulse became no worse, and his respiratory movements were slow but regular The injection was stopped and he was sent back to bed He rapidly revived, and half an hour afterwards he was sitting up in bed quite conscious and comfortable, and the plantar response was flexor on both sides The patient's only complaint was of a slight numbness in his hands and feet This continued with diminished intensity for a day or two and then disappeared The improvement in his colour and breathing lasted some considerable time after the injection, and the patient himself maintains that it has lasted ever since

As we related above this is the only case in which we have had any untoward effects at all and we attribute them to a gush of oxygen through both cannulæ upon doubling the rate of injection in a patient who had had oxygen injected continuously for 20 minutes previously and in whom the cyanosis had been completely relieved With regard to the apparently lasting benefit experienced by this patient we may quote two other cases in which also apparently a lasting improvement occurred

One was a case of malignant disease of the mediastinum with pressure upon the roots of both lungs and double pleural effusion This woman was deeply cyanosed and was the subject of acute attacks of life-threatening dyspnœa which eventually were only very partially relieved by the inhalation of oxygen This patient was treated by intravenous injection of oxygen which was continued for one hour The cyanosis was immediately relieved, and subsequently the dyspnœa attacks were relieved for a week and the patient s condition improved she had much less cyanosis and much less dyspnœa

The second case in which apparently permanent benefit accrued was one of advanced pernicious anæmia This patient was having frequent attacks of dyspnœa upon slight movement in bed and also frequent attacks of vomiting He was given an intravenous injection of oxygen for 40 minutes His attacks of dyspnœa subsequently became less intense and his vomiting less frequent and from then until the present time he has continued to improve His condition before the injection was certainly desperate if not moribund

In our experience the phenomenon to be feared as likely to cause serious symptoms during the intravenous injection of oxygen is dilatation of the heart The ideal case for reaping benefit from this treatment is one in which the cyanosis and dyspnœa are due to acute respiratory difficulty and in which the heart is fairly healthy We do not think the method is likely to be of benefit in the cyanosis and dyspnœa occurring in cases of morbus cordis in which there is marked degeneration of the myocardium If it seemed desirable to adopt it under such conditions we should suggest that an intravenous injection of digitalin or strophanthin be given first It is in this particular that we disagree most emphatically from the view quoted above from the German text-book that the intravenous injection of oxygen can be used to relieve cyanosis of any kind

The object of this preliminary note is not to indicate the specific pathological conditions in which the intravenous injection of oxygen should be used, but simply to point out that in those cases in which the inhalation of oxygen either cannot be practised or gives inadequate relief the intravenous method of oxygen administration if carefully carried out in accordance with the above directions is available to the clinician and will give therapeutic results

[1] The patient is now (August 15th) at a convalescent home

ON THE GLUTEAL FOLD IN SCIATIC NEURITIS

BY HILDRED CARLILL, M A., M D CANTAB, M R C P LOND

TEMPORARY SURGEON R N NEUROLOGIST R N HOSPITAL, HASLAR PHYSICIAN SEAMEN'S HOSPITAL AND MILLER GENERAL HOSPITAL, GREENWICH ASSISTANT PHYSICIAN WEST END HOSPITAL FOR DISEASES OF NERVOUS SYSTEM LONDON LECTURER ON MEDICINE LONDON SCHOOL OF CLINICAL MEDICINE

IT is hoped that these notes may serve to call attention to a fact in the diagnosis of sciatic neuritis which does not appear to have received much attention in the text-books It is that the gluteal fold may be very poorly developed in this condition Commonly it is absent altogether, and this may be the case whether the affection is unilateral, bilateral, or part of a multiple peripheral neuritis

Although this observation is original in the sense that the writer noticed the condition for himself without external assistance, it is not claimed that it is novel, nevertheless, a search through the available neurological literature has been unsuccessful in finding any reference to the condition In Gordon s book[1] there are two photographs which show the abolition of the fold, and Turner and Stewart[2] also give a picture which illustrates the condition. The first two however are instances of a different affection from that under discussion, and in all three there is considerable wasting of the limb in addition to which there is some flexion of the lower extremity on the affected side No reference can be found in Allbutt and Rolleston s System[3] and neither Oppenheim[4] nor Dana[5] mention it in their text-books In the photograph of a man with sciatica and scoliosis which the former author gives the gluteal folds are well marked

It is well recognised that the gluteal fold is not formed by the lower and medial border of the gluteus maximus, indeed, this side of the muscular parallelogram crosses very obliquely the fold of the nates, as its fibres pass from above downwards and laterally It is not a little surprising that authors have always been at pains to mention this fact, but the writer has found that their reasons for so doing are not quite extinct

The fold depends upon the tension of the fascia and its adherence to the subcutaneous fat the skin being creased when the thigh is extended upon the trunk—namely in the erect position of the body When the thigh is flexed, either in health or in disease the fold is lost. Disappearance of the fold in the absence of any alteration in position of the lower extremities alters the expression of the buttocks The chief action of the gluteus maximus is to extend the hip-joint more especially in movements which require considerable muscular effort.[6] When the thigh is kept flexed, as in cases of hip disease for example the muscle atrophies from disuse

It will be recalled that the sciatic nerve is so named only after it leaves the greater sciatic foramen. It is composed of two distinct sections common peroneal and tibial (external and internal popliteal) The level at which the main trunk divides into its two component parts varies to a considerable extent

The nerve-supply of the gluteus maximus is by the inferior gluteal nerve and the posterior cutaneous nerve of the thigh (small sciatic) Probably the muscular branch of the latter nerve is part of the former[6] Parr s refers to the inferior

from 7 to 8 kg quantities of nitrogen varying from 60 to 100 c c in doses of 20 c c at a time Speaking generally, two injections at from 1 to 3 minutes' interval were not attended with any serious result

Demarquay[2] made a similar series of experiments, and in general, confirmed Nysten's results He says that he is convinced that it is possible by making use of small doses to inject into the circulation considerable quantities of oxygen gas without producing any grave symptoms In spite of this statement, however, Demarquay did kill an animal by the injection of oxygen gas into its jugular vein Unfortunately, he gives neither the weight of the animal nor the quantity of oxygen He made, however, the interesting observation that in no case did the venous blood of the injected animal become exactly like arterial, but that for some time after the injection of the oxygen the edges of artificially made wounds remained red and vascular From this latter fact he drew the conclusion that oxygen injected into the veins remains at least in part fixed, and is not entirely used up in respiration This observation is of interest to us with regard to three of our cases (*vide infra*) in which the beneficial result of the intravenous injection of oxygen was certainly more permanent than could apparently be explained by the mere relieving of the cyanosis

Gaertner[3] made a series of observations upon the effect of introducing gaseous oxygen into the veins of dogs He used a continuous stream of oxygen He observed the occurrence of loud cardiac murmurs during the administration of gas In the animals which died he found bubbles of oxygen in the right ventricle, but never observed any in the left He states specifically that the flow of blood containing oxygen bubbles does not obstruct the circulation through the lungs He found that if means were used to greatly limit the respiratory oxygen the symptoms of asphyxia were much delayed and alleviated by the simultaneous administration of intravenous oxygen He attaches great importance to the stream of oxygen being slow and continuous, and states that any dangerous symptoms which may occur may at once be relieved by discontinuing the administration His work, he admits was hurried in order that he "might claim priority" He suggests that intravenous oxygen might be used in the case of man, but he specifically states that he can make no suggestion with regard to method or rate of flow He quotes Nysten and Demarquay His observations were entirely confined to dogs and he adds very little to the work of these observers except that he used a continuous stream instead of intermittent injections

Stuertz[4] made an elaborate series of experiments upon the respiratory exchange occurring in dogs under the influence of the continuous intravenous injection of oxygen His conclusions are that the oxygen introduced in this way is almost entirely used for respiratory purposes, and that a considerable proportion of the oxygen necessary for respiration can be introduced in this way In his opinion the oxygen is best introduced not continuously but intermittently He disagrees with many of Gaertner's conclusions, and from his experiments, which were made on dogs confirms the results of other observers with regard to the absence, or at any rate infrequency of gas embolism

Mariani,[5] using pure oxygen and an elaborate apparatus, though less elaborate than that of Stuertz and Gaertner, introduced oxygen into the dorsalis pedis vein in man The case was a dying phthisical subject In half an hour 80 c c were given then a pause, and then 40 c c in a quarter of an hour The pulse and respiration of the patient were improved The injection was not repeated, and the patient died next day

In a recent German text-book[6] the author in a footnote makes the remark that oxygen can be introduced directly into the veins in man as a treatment for cyanosis of all kinds No reference to literature is given and no directions with regard to quantity or technique With this conclusion we may say at once we totally disagree Its seems to us a flagrant instance of German book making, and likely to have as a result most serious consequences

[2] Demarquay Essai de Pneumatologie Medicale Paris 1866 p 637 et seq

[3] Gaertner: Wiener klin Woch 1902, p 691

[4] Stuertz Zeit für diet und physik Therapie 1904 p 67

[5] Mariani Riforma Medica, 1902, p 194

[6] Schwalbe Handbuch der therapeutischen Technik, 1915

Technique

Our own observations were made exclusively on man. We felt that in so far as the conditions calling for the intravenous administration of oxygen would be urgent ones the apparatus required would be simple We therefore dispensed with the elaborations used for the experiments upon animals and employed the following An ordinary cylinder of Brinn's oxygen, to which was attached a Brinn's endurance regulator A convenient length of pressure tubing connected at one end to the regulator at the other to a piece of bent glass tubing which was drawn out at the end, and passed through one of its necks to the bottom of a two-necked wash bottle From a similarly bent piece of glass tubing, passing for about an inch through the other neck of the wash bottle a further length of pressure tubing passed and was at its end attached to a fine hollow needle This latter piece of pressure tubing was broken by the insertion of a glass T piece To the cross limb of the T piece a small length of pressure tubing was fixed, which could be closed or opened by a screw clip The fine hollow needle was introduced directly into the vein after the latter had been carefully dissected out The wash-bottle was filled with a 2 per cent sodium carbonate solution, before commencing the injection this was blown out by means of passing a stream of oxygen through the tubing and cannula, leaving just sufficient in the bottle to wash any further gas emerging from the cylinder

The regulator was now set by means of the thumbscrew so that 60 bubbles passed through the wash bottle per minute The volume of gas emerging from the cannula corresponding to a given number of bubbles passing through the wash bottle per minute was ascertained previously to the use of any regulator or wash bottle or cannula by means of an ordinary eudiometer At the end of any given administration the volume of gas passing through the cannula was also tested by the same means In this way, by taking the time of the injection, we were able to estimate the amount of oxygen that had been given If, during the administration we desired to increase or diminish the rate we counted the bubbles passing through the wash bottle took the time for which they were given, and subsequently estimated the amount of gas emerging from the cannula with the same rate of bubbles passing through the wash bottle

We found it convenient to use the cross limb of the T-piece, inserted into the tube between the wash bottle and the cannula, as a kind of by pass When we increased the rate of flow we partially opened the screw clip connected by the pressure tubing with the cross-limb of the T piece and closed it gradually when the desired rate was established. By this means any sudden rush of oxygen into the vein was prevented, and sufficient oxygen passed during the change of rate to prevent blood clot occurring in the cannula. This latter point we found very important, as from our experience we should say that displacement of a clot is a more fertile source of danger to the patient than introduction of oxygen

Before we began our observations we endeavoured to obtain an absolutely pure oxygen Such oxygen can be obtained, but owing to war conditions we were unable to obtain any The oxygen we actually used, as we have said above, was Brinn's oxygen, this contains, or may contain 1 5 per cent of nitrogen (we believe it is obtained by fractional liquefaction of air) In the light of further knowledge and of Nysten's experiments upon the injection into the veins of pure nitrogen gas we do not think this quantity of nitrogen of any importance The veins we used were numerous The one we eventually found most convenient was one of the small veins on the dorsum of the foot. In our first observation we used two veins simultaneously From the theoretical standpoint we thought this would be advantageous We subsequently found however, that we could introduce quite sufficient oxygen to relieve cyanosis by using one cannula only and also that having two cannulæ considerably complicated the technique

Results

The result of our observations is that oxygen gas can be introduced into the veins in quantities from 500 to 1000 c c at the rate of from 600 to 1200 c c per hour Cyanosis and the dyspnœa attending it are rapidly relieved, the rapid usually begin with is 500 c c per hour The more cyanotic the patient the better is a rapid rate tolerated As the cyanosis is reduced the rate should be diminished

During the administration the pulse should be watched d the heart auscultated frequently Loud cardiac murmurs ore allied to stomach or intestinal rumbles in character an to ordinary cardiac murmurs may in fact often do, velop during the administration These murmurs are not an dication to stop the administration, but, as a matter fact with careful administration they never need occur all Irregularity in a previously regular pulse or increased regularity in a previously irregular pulse is an indication to ase the injection This phenomenon, in our experience preceded by a soft systolic murmur heard over the area of ie tricuspid valve and this murmur should be listened for he metallic gurglings described above are almost certainly ue to the gas being churned in the heart The soft systolic murmur on the other hand, and the irregularity of the ulse are probably due to acute dilatation of the right side f the heart

In our experience the best method is to inject the gas for eriods of from 10 to 15 minutes with pauses of two or three inutes between injecting during these pauses just enough as to prevent clotting in the cannula We have only had ne case which presented any unfavourable symptoms and e think they were entirely due to faulty technique in that e increased the rate too rapidly This was our first case nd we were using two cannulæ

The patient had been having intravenous oxygen at the ate of 600 c c per hour for more than 20 consecutive minutes We then rapidly doubled the rate The patient was an old man with chronic respiratory disease The yanosis had been completely relieved before we increased he rate Soon after the increase of rate a soft systolic murmur was heard over the right side of the heart and almost immediately afterwards the pulse became irregular The patient began to yawn and in answer to a question said he felt giddy Shortly afterwards both his hands dropped to his side and his legs became flaccid, and he exhibited an extensor plantar reflex on each side He then appeared to lose himself and made no reply to questions His colour kept good his pulse became no worse and his *respiratory* movements were slow but regular The injection was stopped and he was sent back to bed He rapidly revived, and half an hour afterwards he was sitting up in bed quite conscious and comfortable and the plantar response was flexor on both sides The patient's only complaint was of a slight numbness in his hands and feet This continued with diminished intensity for a day or two and then disappeared The improvement in his colour and breathing lasted some considerable time after the injection and the patient himself maintains that it has lasted ever since

As we related above this is the only case in which we have had any untoward effects at all and we attribute them to a gush of oxygen through both cannulæ upon doubling the rate of injection in a patient who had had oxygen injected continuously for 20 minutes previously and in whom the cyanosis had been completely relieved. With regard to the apparently lasting benefit experienced by this patient we may quote two other cases in which also apparently a lasting improvement occurred

One was a case of malignant disease of the mediastinum with pressure upon the roots of both lungs and double pleural effusion This woman was deeply cyanosed and was the subject of acute attacks of life-threatening dyspnœa which eventually were only very partially relieved by the inhalation of oxygen This patient was treated by intravenous injection of oxygen which was *continued* for one hour The cyanosis was immediately relieved and subsequently the dyspnœa attacks were relieved for a week and the patient's condition improved she had much less cyanosis and much less dyspnœa

The second case in which apparently permanent benefit accrued was one of advanced *pernicious* anæmia This patient was having frequent attacks of dyspnœa upon slight movement in bed, and also frequent attacks of vomiting He was given an intravenous injection of oxygen *for 40* minutes His attacks of dyspnœa subsequently became less intense and his vomiting less frequent and from then until the present time he has continued to improve His condition before the injection was certainly desperate if not moribund

In our experience the phenomenon to be feared as likely to cause serious symptoms during the intravenous injection of oxygen is dilatation of the heart. The ideal case for reaping benefit from this treatment is one in which the cyanosis and dyspnœa are due to acute respiratory difficulty and in which the heart is fairly healthy We do not think the method is likely to be of benefit in the cyanosis and dyspnœa occurring in cases of morbus cordis in which there is marked degeneration of the myocardium If it seemed desirable to adopt it under such conditions we should suggest that an intravenous injection of digitalin or strophanthin be given first It is in this particular that we disagree most emphatically from the view quoted above from the German text-book that the intravenous injection of oxygen can be used to relieve cyanosis of any kind

The object of this preliminary note is not to indicate the specific pathological conditions in which the intravenous injection of oxygen should be used but simply to point out that in those cases in which the inhalation of oxygen either cannot be practised or gives inadequate relief the intravenous method of oxygen administration if carefully carried out in accordance with the above directions is available to the clinician and will give therapeutic results

[1] The patient is now (August 15th) at a convalescent home

ON THE GLUTEAL FOLD IN SCIATIC NEURITIS

BY HILDRED CARLILL, M A, M D CANTAB, M R C P LOND

TEMPORARY SURGEON R N NEUROLOGIST R N HOSPITAL, HASLAR PHYSICIAN SEAMEN'S HOSPITAL AND MILLER GENERAL HOSPITAL, GREENWICH ASSISTANT PHYSICIAN WEST END HOSPITAL FOR DISEASES OF NERVOUS SYSTEM LONDON LECTURER ON MEDICINE LONDON SCHOOL OF CLINICAL MEDICINE

IT is hoped that these notes may serve to call attention to a fact in the diagnosis of sciatic neuritis which does not appear to have received much attention in the text-books It is that the gluteal fold may be very poorly developed in this condition Commonly it is absent altogether and this may be the case whether the affection is unilateral, bilateral or part of a multiple peripheral neuritis

Although this observation is original in the sense that the writer noticed the condition for himself without external assistance it is not claimed that it is novel, nevertheless, a search through the available neurological literature has been unsuccessful in finding any reference to the condition In Gordon's book[1] there are two photographs which show the abolition of the fold, and Turner and Stewart[2] also give a picture which illustrates the condition The first two however, are instances of a different affection from that under discussion and in all three there is considerable wasting of the limb in addition to which there is some flexion of the lower extremity on the affected side No reference can be found in Allbutt and Rolleston's System[3] and neither Oppenheim[4] nor Dana[5] mention it in their text books In the photograph of a man with sciatica and scoliosis which the former author gives the gluteal folds are well marked

It is well recognised that the gluteal fold is not formed by the lower and medial border of the gluteus maximus, indeed, this side of the muscular parallelogram crosses very obliquely the fold of the nates as its fibres pass from above downwards and laterally It is not a little surprising that authors have always been at pains to mention this fact but the writer has found that their reasons for so doing are not quite extinct

The fold depends upon the tension of the fascia and its adherence to the subcutaneous fat the skin being creased when the thigh is extended upon the *trunk*—namely in the erect position of the body When the thigh is flexed either in health or in disease the fold is lost. Disappearance of the fold in the absence of any alteration in position of the lower extremities alters the expression of the buttocks The chief action of the gluteus maximus is to extend the hip-joint more especially in movements which require considerable muscular effort When the thigh is kept flexed as in cases of hip disease for example the muscle atrophies from disuse

It will be recalled that the sciatic nerve is so named only after it leaves the greater sciatic foramen It is composed of two distinct sections common peroneal and tibial (external and internal *popliteal*) The level at which the main trunk divides into its two component parts varies to a considerable extent.

The nerve supply of the gluteus maximus is by the inferior gluteal nerve and the posterior cutaneous nerve of the thigh (small sciatic) Probably the muscular branch of the latter nerve is part of the former Harris refers to the inferior-

gluteal nerve as a branch of the posterior cutaneous nerve of the thigh The fibres of these nerves leave the sacral plexus by the fifth lumbar and the first and second sacral nerves, the posterior cutaneous nerve of the thigh having an origin also from the third sacral nerve Now the anterior divisions of the lower four lumbar and upper two sacral nerves divide into anterior and posterior parts[8] and it is the three nerves (L 5 and S 1 and 2) which give rise to the inferior gluteal nerve, which also, by their posterior parts, join to form the common peroneal section of the sciatic. The superior gluteal nerve supplies the gluteus medius and minimus and also the tensor fasciæ femoris

The gluteal fold varies in degree in normal persons, but as a rule it is well marked. It is often duplicated and may be seen in triplicate When it is poorly developed the subject can increase it usually by tightening up his gluteal muscles or by throwing back the trunk. Bending forwards or flexing the thigh cause the fold to be obliterated The influence of flexion or extension is found only in association with tension of the fascia The fold is well marked in people who have an excess of fat in the gluteal region, normal or pathological

Now, to what cause is the obliteration of the fold in sciatic neuritis due? It must depend on flexion of the thigh or upon some alteration in the condition of the under lying structures beneath the fold In my cases there was no flexion of the thigh. In some cases Laségue s sign was also negative—that is to say, the thigh could be flexed on the trunk, with the leg extended without causing pain[9] When the sign is positive, from stretching of the nerve, it is a certain indication of a degree of affection in the nerve fibres or in their sheath The test is performed in the same manner as that employed in eliciting Kernig's sign in cases of meningitis but the significance of the positive test differs in the two instances It has been shown that Laségue's sign may be accompanied by momentary dilatation of the pupil, together with a raised blood pressure and an increase of the pulse-rate[10] These signs occur in association with the pain and serve to support a diagnosis of sciatica in cases where malingering is suspected Laségue s sign, as well as Kernig's, may be tested for with the patient in the sitting position

Experiments prove that flexion of the thigh by itself stretches the sciatic nerve On the other hand, flexion of the knee at once relaxes the nerve and it is this position which the patient adopts in painful affections of the nerve As he does so he unconsciously flexes the thigh also, the two movements being normally simultaneous

Those patients with neuritis in whom I have found the folds absent invariably had abolition of the ankle jerk.[11] This is an important fact in the diagnosis between a neuritis on the one hand and pain, whether local or referred, in the distribution of the nerve, on the other It is submitted that the condition of the fold may be of considerable diagnostic value in these cases, and may, indeed be of great importance in those patients in whom it is not possible to test the ankle jerk In cases in which the jerk is absent the Achilles tendon may be diminished in size.

As regards changes in the underlying structures some of my patients had wasting of the gluteal muscles, which were soft and flabby, but certainly others had no perceptible wasting in this region, nor was there any which could be measured in the thigh or calf In the absence of both wasting and flexion it is not easy to say how the loss of the fold comes about In a man who fell on to his left buttock and developed a traumatic cutaneous neuritis, with anæsthesia over his left gluteal region so that he was totally unable to recognise that he was sitting on materials of dissimilar consistency, the folds were normal

Abolition of the ankle jerk in sciatic neuritis depends usually on loss of conduction of the message in the tibial or sciatic nerves or in the roots of the sacral plexus It has been pointed out above, however, that the nerve-supply of the gluteus maximus is derived from the nerves which go to form the common peroneal trunk It would appear therefore, that in those cases of neuritis in which both the ankle-jerk and the gluteal fold are lost the whole thickness of the sciatic nerve is affected. Yet such cases may show no weakness of the muscles supplied by the common peroneal (and this is more vulnerable, as a rule than the tibial), and, indeed, we may see patients with this condition who have no complaint whatsoever and who are discovered by accident Absent ankle jerks in persons who have normal folds and who present no other signs of neuritis are not uncommonly discovered in alcoholics and others They must then be looked upon as the solitary sign of a toxic neuritis

The absence of the gluteal folds in people with peripheral neuritis would go to prove that the whole length of the nerve is affected, including the roots of the sacral plexus I have not yet seen a sufficient number of patients from this point of view, however, to enable me to state whether the folds are always abolished in this affection, but those cases which are not severe as regards their motor and reflex functions certainly have normal folds

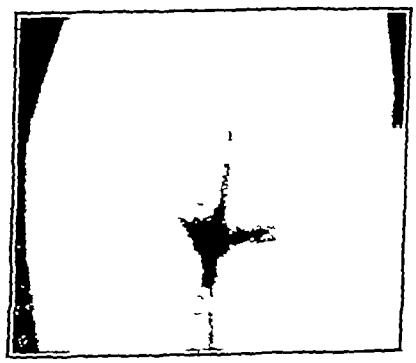
Mistakes may be made, as in Case 3 In this man repeated examinations were made by the writer and many other observers but the knee jerks and the ankle jerks could not be elicited. It was noted too, that the gluteal folds were poorly developed Later, however, all these deep reflexes were obtained, but only with the aid of veritable refinements of reinforcement

The value of the sign is certainly greater when one side only is affected, as a comparison can be made between the two folds

In one man who had suffered from pain in the left calf for two months, but who was not incapacitated I failed to obtain the ankle jerk on that side His fold was quite normal, however, and there was no other sign of disease. Six weeks later the ankle jerk was elicited, but only when the tendon was struck on the outer side No special treatment had been adopted and I wondered whether the diagnosis of neuritis was correct or whether the jerk had never been absent

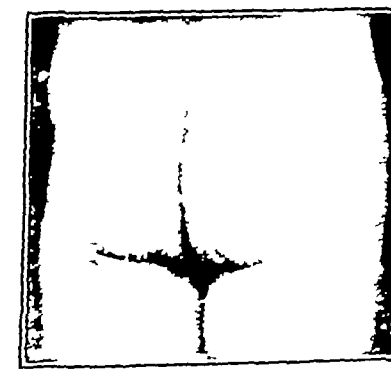
It should be mentioned that in none of my cases had any injection or nerve stretching treatment been employed

FIG 1 (Case 2)



Poorly developed gluteal folds in a man with peripheral neuritis. The left fold has nearly disappeared Note that there is no flexion of the thigh

FIG 2



Normal gluteal folds in a man of the same age as Fig 1

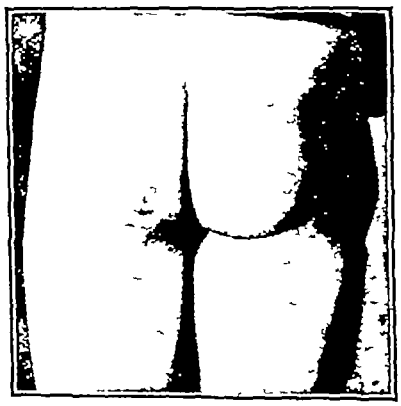
I wish to thank particularly Professor Arthur Robinson of Edinburgh who has verified some of the anatomical statements, and Fleet-Surgeon J Stoddart, R N , who kindly took for me the photograph of Case 4

Appended are brief notes of the cases whose photographs are shown In none of the patients were there vaso-motor or trophic changes

CASE 1 —Gunner, R M.A., aged 36 Two years' history of pain all over the left leg and thigh, intermittent, but had never been two days without pain Laségue's sign positive on left side and left ankle jerk absent Well marked scoliosis, with the anal cleft running obliquely Circumference of the left thigh and leg 1½ inches and ½ inch less than the respective measurements on the right side Gluteal mass on the left side very flabby and fold poorly marked. A great difference existed between the two folds This was, however, not nearly so marked as in Case 4, although in the latter the signs were only found by looking for them

CASE 2 —Patient, aged 24, suffered from peripheral neuritis following dysentery He contracted the latter disease at Gallipoli in September, 1915 When he reached England in December his knee-jerks and ankle jerks were noted to be absent according to the patient, and he said that he had numbness of the legs There was also muscular hyperalgesia of his calves In March, 1916, his legs were still painful, and there was an extraordinarily well marked condition of steppage gait His knee-jerks were now present, but the ankle-jerks were absent Laségue's sign was positive There were several tender points down the back of the thigh, and there was blunting to pin pricks over the front of the shins The gluteal folds were very poorly marked, notably on the left side (Figs 1 and 2.)

FIG 3 (Case 4)



Absence of the gluteal fold in sciatic neuritis Note that there is no apparent wasting of the muscles and no flexion of the thigh.

CASE 3 —Patient aged 23, had apparent absence of tendon jerks in lower limbs These were elicited only with the greatest trouble Gluteal folds poorly marked but symmetrical This case is alluded to in the text

CASE 4 —Gunner, R M A., aged 32 This man complained of nothing at all He was found to have no ankle-jerk on the left side during a routine examination of the reflexes of the ship's company Absence of the left gluteal fold was also observed (Fig 3) but no other objective signs of disease were detected He admitted to having had a stitch in the calves for two or three years, and he said that at night he sometimes had cramps in the toes and feet on both sides He stood to attention without any difficulty and was doing hard work without pain or discomfort He had never been laid up There was absolutely no evidence of wasting in the gluteal muscles and they contracted powerfully The left calf was less than ½ inch smaller than the right This is within normal variations There was no motor weakness and no sensory change either objective or subjective, on the occasions of examination

Reference s —1 Diseases of the Nervous System Gordon second edition, pp 315 267 2 Text book of Nervous Diseases, Turner and Stewart, p 123 3 Allbutt and Rolleston s System of Medicine vol vii 1910 4 Oppenheim s Text book of Nervous Diseases (Bruce) vol i 5 Dana Text book of Nervous Diseases eighth edition 1916 6 Morris Treatise on Anatomy second edition 7 Harris Nerve Injuries and Shock 1 15 8 Paterson quoted by Proles or Robinson in Morris s Anatomy 9 Laségue Arch gén de Méd, 1864 10 Bonti G : Il Policlinico 1916 and THE LANCET April 22nd 1916 1 87 11 Carlill Hilliard Diagnostic Importance of the Ankle-jerk Journal of the Royal Naval Medical Service vol ii No 2 also The Ankle-jerks of a Ship s Company vol ii No 4 (in the press)

A CASE OF DILATATION OF THE HEPATIC FLEXURE OF THE COLON

GIVING RISE TO THE PHYSICAL SIGNS USUALLY ASSOCIATED WITH SUBPHRENIC PYOPNEUMOTHORAX

BY W J MORRISH, M D LOND , M R C S

With a Note by T D ACLAND, M D Oxon , F R C P Lond , Major, R.A.M C (T)

THE following case is thought worthy of record not only on account of the rarity of the condition but also because of the importance of recognising the possibility of its occurrence when deciding the question for or against an exploratory laparotomy in any case in which the normal liver dullness is replaced by a resonant note, but in which other evidences of intra-abdominal or intra thoracic suppuration are absent

The patient, aged 20 enlisted as a private in the Royal Army Medical Corps in January, 1914 As far as he knows he was quite well at the time, and had not had any other illness except chicken pox, whooping cough, and measles as a child His bowels had never given him any real trouble, though they were inclined to constipation, which was easily overcome by a simple aperient He arrived in Alexandria in September, 1914, and was on duty at a military hospital, where he remained for six months, during the first three of which he was nursing cases of dysentery, and for the last three waited upon convalescent medical patients During the whole of this period he remained well At the end of April he was sent to Gallipoli, where he acted as water duty man to the battalion and helped at the first aid station After he had been there for three and a half months he began to feel poorly, complaining of dizziness and of easily getting tired He then developed diarrhœa, passing mucus all the time and blood on two occasions, but he still remained at work After three weeks jaundice came on, and he was then sent into hospital, being transferred in a day or two to hospital at Mudros Four weeks later he was sent to England as a case of "convalescent jaundice" and was admitted to the Tooting Military Hospital on Nov 11th, 1915 No record is available as to his condition while in hospital at Mudros but he says that on admission to the First East Lancs Field Ambulance his temperature was 101° F While at Mudros his stools were examined, and he was given four doses of emetine, but no enemata Ever since the first onset of diarrhœa his stools had remained loose

On admission to the Tooting Military Hospital the patient complained of pains in the stomach and diarrhœa, and pain and loss of power in the legs, especially in the right, which had developed during the voyage home His evening temperature was 98 6° and the pulse rate 94 The heart and lungs were normal On the morning of Nov 14th the right ankle was found to be œdematous and the pain became worse, and by the 16th the left ankle was also swollen, but never so much so as the right

Major Acland, R.A.M C (T), saw the patient soon after his admission and made the following note "Patient is emaciated Has moderate pyrexia and peripheral neuritis of lower extremities Over the right lower quadrant of the thorax (which inspection shows to be considerably bulged), the liver dullness is replaced by a tympanitic note which is unmistakable, and which gives in places a well-defined coin note there is obviously some air containing cavity or viscus It is unlike pneumothorax and is certainly not a pulmonary cavity Also the lung seems to expand over it during deep inspiration, so that probably it is below the diaphragm, in which case it might be that the liver has shrunk and fallen away from the chest wall, leaving the colon to ride over it, or it might be a subphrenic or hepatic abscess or a hydatid The signs of an inflammatory lesion are inconclusive, since the abdomen moves well and the thoracic movements are not notably diminished An X ray would decide the point as to which side of the diaphragm the lesion is and I think this should be taken "

Next day Dr Russell J Reynolds reported as follows "On X ray examination the patient's liver appears normal, ascending and transverse colon very much distended with gas and coinciding with the tympanitic area made out on percussion " Enemata of plain water and turpentine and water were administered daily and brought away large quantities of flatus and some fæcal material but the tympanitic area remained well defined although the coin note could not always be elicited and the bulging of the side was less noticeable The œdema, too of the ankles and the pain in the shins steadily diminished and the patient was able to move his legs more freely Massage to the colon and the limbs was ordered, but

after two applications to the abdomen he asked that it might be stopped as it made him feel sick It was continued to the legs, and the improvement was for a time maintained Between Nov 11th and Dec 13th the temperature was irregularly intermittent, but from that time onwards, with two short periods of fever (maximum 101°), it was seldom raised above normal, and the patient felt much better, the tympanitic area, however, still persisted, though it varied in size, and the coin note could not always be obtained On Dec 17th, further to elucidate the true nature of the condition, Dr Reynolds skiagraphed the abdomen after a bismuth meal It will be seen from the skiagram that the

Reproduction of skiagram showing the colon 24 hours after a bismuth meal

hepatic flexure of the colon corresponds exactly to the tympanitic area marked out on the first examination

At first the case seemed to do well, the pain in the limbs diminished, and the power of movement greatly improved, but in January, 1916, the patient began to suffer from increased looseness of the bowels which developed into an intractable diarrhœa, for which numerous remedies were tried without success There was not at any time vomiting, though there were intermittent attacks of abdominal pain As the condition gradually became worse it was decided to explore the abdomen in the hope of giving relief The operation was successfully performed on March 8th by Mr E Gillespie to whom I am indebted for the following note "On making a median incision it was found that there was marked distension of the cæcum and ascending colon to the middle of the transverse colon The cause of this was an extensive adhesion implicating the great omentum and passing from the great curvature of the stomach across the transverse colon to the duodeno-jejunal flexure It was evident from inspection that peristalsis would give rise to tension of the gut and a kink The portion of the great intestine distal to the adhesion was collapsed The adhesion was divided and ligatured, the appendix was removed since the distal third had become sclerosed and the lumen almost obliterated, though this condition did not seem to be connected with the intestinal lesion A caseating mesenteric gland in the iliac portion of the small intestine was found and removed The stomach, duodenum, and gall bladder were normal"

The immediate effect of the operation seemed to be beneficial The abdominal pain became less, and for a time not only did the general condition improve but the patient began to put on a little flesh Before long, however, the previous symptoms began to recur An intractable diarrhœa resisted all remedies and he slowly lost ground The emaciation became extreme Gallate of bismuth, opium, salol, lead and opium and pernitrate of iron by the mouth, and injections of silver nitrate and quinine by the rectum were tried to no purpose

The only remedy which appeared to exercise any control over the diarrhœa was atropine given in doses of gr 1/100 with tincture of opium, min x. The patient wasted literally to a skeleton, and it is greatly to the credit of the nursing that in spite of the fact that he not infrequently had as many as from 15 to 20 loose motions a day, he never had a bedsore

Death occurred on Sunday, May 14th, and an examination of the abdominal organs showed that the ascending and transverse colon was dilated and that the walls were thinned. There was no evidence of ulceration or inflammatory thickening or abscess The mucous membrane was atrophied and over considerable areas was denuded of epithelium. The small intestine showed similar change, but in a much less marked degree The condition was one of chronic entero colitis There were a few small mesenteric glands but no inflammatory changes were found in the liver, spleen or kidneys By special request the thoracic organs were not examined

Note by Major T D ACLAND, R A M C

The condition found in the case narrated above is of sufficient rarity to warrant its being put on record A subphrenic pyopneumothorax on the right side, resulting from suppuration connected with the liver, duodenum, or appendix or from suppurating hydatid cyst, is, unfortunately, not uncommon Again, partial obliteration of the liver dullness owing to the presence of gas in the peritoneal cavity or to the colon distended as a result of the softening and weakening of the walls from chronic dysentery or from obstruction below, or from paralysis (such as that which occurs in peritonitis) over riding the organ, is only too frequently met with To find practically the whole of the normal liver dullness replaced by a tympanitic area giving rise to a well marked coin percussion note without either acute atrophy of liver, transposition of viscera, or evidence of some inflammatory lesion in the abdomen or thorax, is unusual

In cases in which the hepatic flexure of the colon is greatly dilated from any cause the liver is generally pushed up, rather than away, from the chest wall, and if this latter condition is found it is unusual to find more than the lower two inches of liver dullness replaced by a tympanitic note

The only case which I have so far been able to find in an extensive search through the literature of the subject[1] is one recorded by M Béclère[2] In this instance, with the help of a radioscopic screen, which was then just coming into use, an air containing cavity was diagnosed below the diaphragm on the right side The condition was associated with physical signs in the right lung which were at first thought to be due to advanced pulmonary tuberculosis and subsequently to an interlobar empyema Later, when by the aid of the X ray screen an air containing cavity was detected below the diaphragm, which obliterated the normal liver dullness it was surmised that the patient was suffering from a subphrenic abscess which communicated with a bronchus Both surmises were incorrect A few days later the patient died almost suddenly and post mortem it was found that the supposed subphrenic abscess was a local distension (ectopic) of the colon, and had no connexion of any kind with the pulmonary lesion which was bronchiectasis In the case recorded above there were no signs of pulmonary or abdominal disease to lead one astray, while the fact that the cavity altered in size aroused a suspicion that it might in spite of its position, possibly be due to the distension of one of the hollow viscera—e g, stomach (by transposition) or colon A bismuth meal put the question beyond doubt

The reproduction of the skiagram taken by Dr Reynolds shows the distended hepatic flexure of the colon 24 hours after taking a bismuth meal It will be noted that the ascending and descending colons are comparatively empty and that the hepatic flexure looks as if it had a kink in it such as might result from adhesions formed by a local peritonitis or an old tuberculous gland

[1] Cf Subphrenic and Other Forms of Peritoneal Abscess by T D Acland A System of Medicine edited by T C Allbutt and H D Rolleston 1907 vol iii p 1008

[2] Bulletins et Memoires de la Societe Medicale des Hôpitaux de Paris 1899 pp 455 and 506

TYPHUS IN GLASGOW—Dr A K Chalmers medical officer of health of Glasgow reported last week to his committee the occurrence of eight cases of typhus in Partick during the month of July The first cases recognized sickened between June 30th and July 3rd a second group of cases occurred on July 16th and 20th and a further group being the third generation of contacts occurred on July 27th and 30th The simultaneous sickening of the four persons who formed the first group suggested to Dr Chalmers an undiscovered infection which might produce further cases elsewhere

Reviews and Notices of Books.

Squire's Companion to the British Pharmacopœia

By PETER WYATT SQUIRE. Nineteenth edition London J and A. Churchill 1916 Pp 1712 Price 15s net

"Squire s Companion' is one of those books which having stood the test of time may be regarded as being above criticism To medical practitioners and pharmacists it is familiar as a household word The British medical man who does not know this book must indeed be a *rara avis*, its only fault is its size, for it is not a book one can conveniently carry about for ready reference, and its companionship is therefore restricted to the study and the consulting room The nineteenth edition records advances in medical and pharmaceutical sciences almost up to the early summer of this year, which is saying a great deal for anyone who has had anything to do with the preparation of a large volume of this nature and one which must have a great circulation, can appreciate the difficulties in the way of keeping the matter quite up to date from p 1 to p 1712. One finds a description of the uses of hypochlorous acid as an antiseptic the iodine treatment of wounds fully dealt with, and a reference to chloralamine The compounds more recently employed in the treatment of syphilis—e g , neo-kharsivan, galyl, and intramine—receive attention If the author and his collaborators were prevented by the pressure of the times from completing their work so that it might appear more quickly on the heels of the new British Pharmacopœia, the users of the book will find compensation for the delay in the extra information the author has been able to include concerning therapeutical progress subsequent to the issue of the 1914 Pharmacopœia

No change has been made in the general arrangement of the book as a work of reference , thus, a practitioner who has been familiar with "Squire through one edition after another will know precisely where to find what he wants in the nineteenth edition As formerly, the monograph on each substance gives first the Latin title then the English title, then the French German, Italian, and Spanish names under which the drug or its preparations are known , then follows a short description of the drug and in the generality of cases a short account of its usual method of preparation solubility, medicinal properties, dose, prescribing notes incompatibles official preparations preparations that are not official antidotes, and other information The medical portion of the book has been revised by Dr Taylor Grant and the notes on the medicinal properties of the drugs are really concentrated accounts of all that is worth knowing—for practical purposes—of the drugs in question To prescribers these notes are very valuable and hardly less useful are the prescribing notes which represent Mr Squire s personal experience of over 40 years in the dispensing of prescriptions Perhaps it is that pharmacists are rather shy about making suggestions to medical men but authors of books of this class are not over generous in their prescribing hints And so we make the suggestion to Mr Squire that in a future edition practitioners would welcome the inclusion in these notes of an occasional model prescription , for thoughtful practitioners recognise that the pharmacist often knows more about the art of combining drugs than does the doctor The objection might perhaps be made that the book is already big enough but a few extra pages would not noticeably add to its size, while they might add greatly to its usefulness.

The changes that have been made in the 1898 and 1914 British Pharmacopœias the alterations in the strength of the various preparations are clearly indicated One of the distinctive features of the first edition of Squire s Companion " published more than 50 years ago was the note on solubility and this has continued to be a feature through all subsequent editions these solubility figures are very useful to prescribers and in the present volume is included a number of figures specially determined for the nineteenth edition and in any cases of doubt previous figures have either been confirmed or new figures have been introduced The paragraphs dealing with tests have been re written besides considerably a critical comparison between the tests of the British Pharmacopœia and those of the United States and German pharmacopœias they contain many references to work done in Mr Squire's laboratory The section on chemicals and reagents used in qualitative testing, volumetric analysis, and so on, is of greater interest to pharmacists than to medical men, but it may be added that this section has been improved considerably Dr R T Hewlett has revised the useful chapter on therapeutic agents of microbial origin

The Mortality from Cancer throughout the World

By F L HOFFMANN LL D New Jersey, U S A The Prudential Press 1915 Pp xv -826

THE bulky volume on cancer mortality published by the Prudential Insurance Company of America comprises 220 pages of letterpress by Dr Hoffmann and 600 pages of appendices and index giving statistical data on the subject from many countries for a varying number of recent years Dr Hoffmann is firmly convinced that the recorded increase in cancer mortality throughout the world denotes a real increase in the frequency of the disease, and this volume although ' primarily intended to supply the necessary data for a scientific study of the cancer problem from the statistical point of view,' in reality marshals the most heterogeneous data in support of this conviction Throughout the book one is reminded again and again of the pre eminent position taken by the work of English statisticians in the long drawn out discussion of this thorny problem The reports of the Registrar General King and Newsholme, and the Imperial Cancer Research Fund's publications are referred to repeatedly, and the guarded statements of the Fund's reports on the significance of the recorded increase in cancer mortality are criticised with much energy

Although the importance of actuarial correction for age and sex is insisted upon, many of the tables merely give crude rates obtained by multiplying the total deaths from cancer by 100 000 and dividing by the total population It would have been preferable to exclude the data from those countries in which some kind of actuarial correction for age and sex is impossible rather than increase the bulk of the data by sacrificing accuracy and possibility of comparison The fact is undoubted that when all possible actuarial corrections have been made the cancer mortality of most countries shows a definite increase and the crux of the problem lies in the difficulty of estimating the fraction of the increase which should be attributed to improvements in diagnosis and in registration of the causes of death To take an extreme example the mortality from cancer in Manila rose from 15 8 per 100 000 of population in 1905 to 30 7 in 1910 No one is so foolish as to believe that cancer has doubled in frequency in the Philippine Islands during five years of American administration In a less degree the same difficulty of interpretation of cancer statistics adheres to the data from countries such as England and Wales and the United States It is also interesting to note that the cancer death rate has diminished during the last ten years in Switzerland, the country with the highest rate Does this indicate a diminution in the frequency of cancer in Switzerland? The tables published by Dr Hoffmann do not solve either of these problems nor is it justifiable to brush the Swiss figures aside on the assumption that the cancer rate in that country being double the average for all other countries and having reached a maximum, it must diminish As cancer accounts for about one tenth of deaths from all causes there is room, even in Switzerland, for a measurable increase

The data are not available nor is the time yet ripe for a conclusive discussion of the full significance of the recorded increase of cancer mortality and the volume under review, while giving much of the available data in compact form, merely emphasises how far we are still removed from an objective survey of deaths from cancer The book is well printed and most carefully revised but a larger *format* would have facilitated reference to the longer tables

JOURNALS

Parasitology Vol VIII No 4 June, 1916 Cambridge University Press Price 10s net.—In this issue there is an important article by Dr G S Graham Smith, entitled "Observations on the Habits and Parasites of Common Flies ' The work

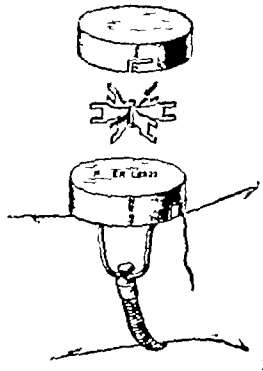
described in the paper has engaged the author during the period between 1912 and the date of publication, and many of the results obtained should prove of unusual interest to those employed in public health work. The more important of the conclusions arrived at by the author may be briefly summarised as follows 1 Amongst the common species of flies it was found that the majority passed the winter as pupæ or, rarely, as larvæ which pupate in the spring The pupæ or larvæ are usually buried within two or three inches of the surface of the ground, but occasionally are found on the surface in sheltered positions 2 The wintering habits of *Musca domestica* are still obscure 3 The emergence of the "winter" pupæ is dependent upon the mean temperature of the immediate surroundings reaching a certain "critical" point, which differs for each species The "critical" point for *Calliphora erythrocephala*, *Fannia manicata*, and *F scalaris* is about 48°–50° F 4 Flies emerging from "winter" pupæ are always more hardy than those of subsequent generations The males usually emerge before the females 5 The author's observations on blow flies, confined in a large, open air, protected cage, lead him to believe that "the estimations of the multiplication of flies" made by Howard and Fabre "are very much exaggerated" 6 The normal duration of life of the blow fly, in summer, is about 30 days The influence of the weather on the death rate of flies is dealt with and the greatest mortality was found to occur on sultry days 7 Of the flies which enter houses, only *M. domestica* remains for any long period *C erythrocephala* enters for the purpose of ovipositing on meat, *S calcitrans* for temporary shelter, and *F canicularis* "for some purpose at present unknown" The author suggests that *M domestica* requires a high temperature for the development of its eggs and remains indoors until ready to oviposit 8 Amongst the more important agents which tend to limit the numbers of flies are braconid and chalcid parasites, which bring about the destruction of large numbers of larvæ and pupæ The braconids, *A manducator* and *A cephalotes* and the chalcid, *M acasta*, hibernate in the fly puparia as larvæ, and experimental work with a view to the destruction of flies by their agency, is now being carried on The author also deals with the part which flies play in the distribution of pathogenic bacteria, and points out that "all species of flies which visit excrement and decaying animal matter also visit ripe fruit" He adds that "great contamination of fruit on trees and exposed for sale in shops with fæcal and putrefactive bacteria is caused by flies and wasps" Numerous charts and illustrations accompany the article which contains much valuable information for the practical sanitarian

Journal of Cancer Research Vol I, No 2, 1916 —The second number of the new *Journal of Cancer Research* begins with an interesting review of tumour immunity, by Dr Tyzzer Starting from the conception, first clearly enunciated by Russell, that natural resistance to tumour inoculation is merely the consequence of capacity to react with immunity to tumour inoculation and susceptibility the failure of this reaction, Dr Tyzzer utilises the varying resistance of several strains of mice to one tumour strain to analyse tumour immunity, and to throw light on the nature of cancer By carefully planned and recorded breeding experiments it is shown that resistance is not transmitted as a Mendelian character when resistant and susceptible strains are crossed, and the conclusion is drawn that resistance depends on the coöperation of a number of independent factors Tumours themselves are regarded as "somatic mutations" arising in the body cells and breeding true on propagation Dr E T Bell and Dr A T Henrici describe two renal tumours from the rabbit. The first of these corresponded in structure to the adeno-sarcomata of man, with undifferentiated cell masses tending to develop tubules and indications of glomeruli The second case was of similar type but rather more tubular in structure The authors suggest the name *Nephroblastoma* for tumours of this type Dr R A Lambert gives a general survey of the application of *in vitro* culture to cancer problems Five cases of thyroid tumour in the sea bass (Serranus scriba and cabrilla) are described and figured by Dr Marsh and Dr Vouwiller In structure the tumours varied from colloid goitres to adenoma, and there was no definite evidence of malignancy Professor Gaylord adds remarks on thyroid enlargement in fish. The effects of cancer tissue on protozoa are utilised by Professor G N Calkins to study the biochemical differences between normal and tumour tissue He finds that cancer tissue added to cultures of Didynium nasutum a predatory infusorian stimulates the rate of division in moderate doses more than does extract of normal epithelium Larger doses have a lethal action, absent when normal tissue is used. The results are correlated with the role of products of tissue autolysis in chronic irritation associated with the development of cancer The last paper by Dr Erwin F Smith, deals with crown gall of plants and its relation to human cancer The plant tumours due to Bact. tumefaciens are well described and figured, and the view put forward that the tumours of man and animals are due to a similar organism

New Inventions

A WRISTLET LIGATURE HOLDER

I HAVE used the wristlet ligature holder here illustrated for many months and find it very convenient as a time-saving device where a number of bleeding points have to be tied in the course, for example, of such operations as removal of the breast, glands in the neck, and thyroidectomy The lid is removable, and when secured by a bayonet catch leaves a small slit-like aperture through which the ligature material emerges Owing to its small bulk it can be worn throughout an operation without inconvenience The skeleton reels are removable, and a number can be kept ready wound and sterilised A reel will easily hold 40 feet of a fine thread. If gut be used iodine should not be utilised in its preparation, owing to its action on the metal



The instrument has been made to my design by Messrs Meyer and Meltzer, of Great Portland street, W

PERCIVAL P COLE, M B CH B Birm, F R C S Eng
Queen Anne-street W

AN EGG-CUP FOR SINGLE-HANDED USE

AN egg-cup for the use of men with only one arm has been designed by Mr Magnus Volk, R A M C, voluntary worker by appointment at the 2nd Eastern General Hospital, Brighton The cup is a wooden disc, 5 inches in diameter, with projecting rubber feet The essential features are shown in the perspective view, Fig 1 and the section, Fig 2, showing rubber feet projecting one sixteenth of an inch The cup sits firmly on the tablecloth even when only one hand is used and the hollow is deep enough for the contained egg not to tilt The cup has proved most useful to crippled men in the hospital The illustrations are one-third natural size

FIG 1

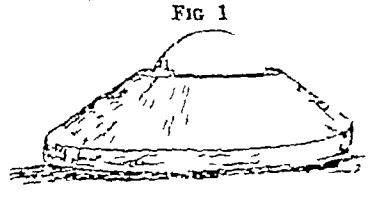


FIG 2

THE NEW HULL SANATORIUM —The new sanatorium erected by the Hull corporation on the Cottingham Castle estate the foundation stone of which was laid by the King in 1914, was opened by the Lord Mayor of Hull on August 5th It covers 100 acres and has cost £25,23[illegible] of which £10,800 have been paid by the Government. The buildings consist of an administrative block with pavilions for males and females and a hospital for advanced cases The pavilions provide for 80 beds and the hospital block for 40 beds

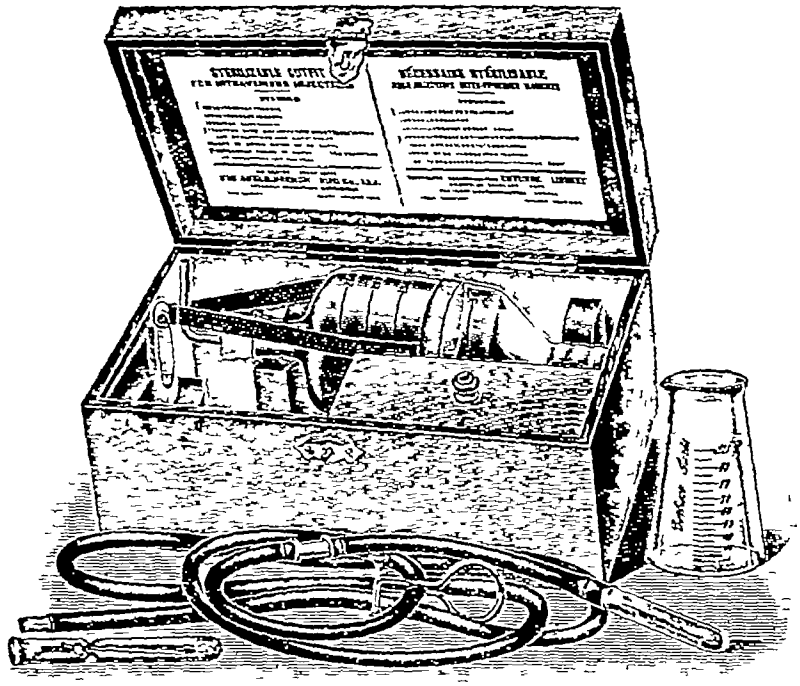
THE TREATMENT OF VENEREAL DISEASE

STERILIZABLE OUTFIT

For Dilute Intravenous Injection of GALYL or other Solutions.

Portable Oak Case 10" × 5", containing

- 1 250 c.c. Graduated Ampoule with rubber stopper and glass tube
- 1 100 c.c. Graduated Measure.
- 1 Suspension Strap
- 1 Descending Tube with index and glass nozzle fitted with short bevelled steel needle
- 1 ½-oz. bottle Iodéol for sterilizing puncture area



- 1 Packet Silver Threads for the needle
- 1 Plated Tube-clip to regulate flow workable with one hand
- 1 Glass Stirring rod
- 1 Glass Funnel for filtering
- 1 Packet Sterilized Cotton wool

Price, complete as above, 30/-

(Special Platinum Needle 7/6 extra)

GALYL

ROYAL COMMISSION ON VENEREAL DISEASES Final Report of the Commissioners

SUBSTITUTES FOR SALVARSAN

.... another French substitute GALYL, a compound of arsenic and phosphorus has recently come into prominence and its use has been attended with considerable success

* * * * * * * * * * *

"Favourable reports have also been obtained regarding the preparation GALYL. At the Male Lock Hospital 1000 injections of this substance have been administered, and it is reported that they have been attended with as good results as in the cases treated by Salvarsan and Neosalvarsan In no instance were the injections followed by reactions indicative of arsenic poisoning

Equally favourable results have been obtained with GALYL in the Military and Naval Medical Services and most of the large general hospitals

FORMS.

FOR DILUTE INTRAVENOUS INJECTION —In ampoules containing GALYL and the necessary dose of sodium carbonate sterile distilled water only being required to prepare the injection.

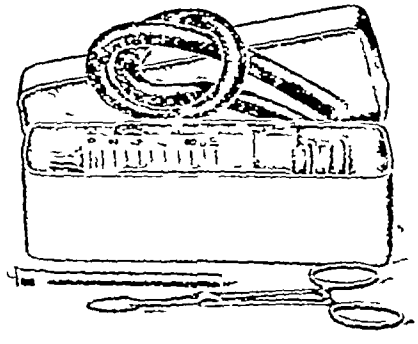
FOR CONCENTRATED INTRAVENOUS INJECTION —In Outfits containing: one flask with GALYL, one ampoule sterile carbonated serum one liter Doses 0·10 0·15 0·20 0·25 0·30 0·35 0·40

FOR INTRAMUSCULAR INJECTIONS —In ampoules containing an oily emulsion of GALYL. Doses 0·20 0·30 0·40

POCKET CASE.

Containing the entire instruments (sterilizable) necessary for administering a concentrated intravenous injection of GALYL or other solution

- 1 Indiarubber Tube for constricting the arm
- 1 Clamp for fixing the rubber band
- 1 Glass Syringe of 10 c.c. capacity



- 1 Platinum Iridium Needle length 4 cm diameter 0·9 with short bevelled joint and special barrel. Attachable to the syringe without any additional junction.
- 1 Nickel plated Case to hold all the above
- 1 Chamois Leather Pouch
- 1 Glass Filtering Tube with rubber attachment.

Price complete - - 30/-

THE ANGLO-FRENCH DRUG CO LTD (late M BRENILLON & Co) GAMAGE BUILDING, HOLBORN LONDON, E.C
Telegrams "AMBALVAR LONDON" 'Phone HOLBORN 1311

"SANITAS"

"SANITAS FLUID," the NON-POISONOUS DISINFECTANT for Washing the Sick, Dressing Wounds, Mouth and Throat Wash, Purifying the Air by Oxygenation, and Spraying Sick Rooms. (Sprays 3/- each.)

"SANITAS OIL," for Inhalations in Lung and Throat Trouble.

"SANITAS-SYPOL"—an improved **LYSOL** (introduced by us in 1902)
Makes a Clear and Bright Solution for Antiseptic Surgery.

"SANITAS-OKOL" (EMULSION)
"SANITAS-BACTOX" (HOMOGENEOUS)
Phenoloid Disinfectants from 18 to 20 times the co-efficiency of Pure Carbolic Acid.

"SANITAS POWDER," for Dry Disinfection—much stronger than Carbolic Powders

"SANITAS" SOAPS, Hard, Soft, Toilet and Animal.

"SANITAS SULPHUR CANDLES" (Kingzett's Patents), for Fumigation.

"SANITAS FORMIGATORS" (Kingzett's Patents), for Formic Fumigation.

"SANITAS" POLISHES (DISINFECTANT), for Floors and Furniture and for Hospitals, Workhouses, &c

"PEROXIDE OF HYDROGEN" (Kingzett's Preserved Quality).

The "SANITAS" CO., Ltd.,
LIMEHOUSE, LONDON, E

Disinfectant Manufacturers, by Appointment, to H M THE KING

THE LANCET.

LONDON SATURDAY, AUGUST 19, 1916

The Manufacturing Chemist and His Opportunity

If we may judge from the prodigious scale on which munitions are now being made in this country very little fear need be entertained that the manufacturing chemist and his staff will fail us in the time of peace If swords can be made so can ploughshares It must be remembered that behind all this gallant army of workers is the man of technical knowledge, who, to the surprise of many, has compounded his ingredients with the same success on the stupendous scale necessitated by the war as on the more moderate scale demanded by peace This fact we feel bound to accept as a welcome sign of the skill and capability of our experts who, being caught in the sudden demands of an enormous emergency, were not found wanting Surely the same willing ness and devotion will be found when all arms are laid down, and when the consideration will be to beat the enemy in regard to the supply of peace munitions, of drugs, and of medicinals—things the manufacture of which, owing to our lethargy in the past, he has been able practically to monopolise

Signs are not wanting that we are advancing in this direction, for prices are falling on certain com modities which formerly we derived wholly from the enemy and we have reason for believing that British manufacturers are turning serious atten tion to the production of a great many articles of medicinal, industrial, and domestic importance Slowly but surely are being laid the foundations of new industries which it is hoped will render us independent at all events in many directions, of external supplies A serious difficulty in such enterprises will of course arise where nature has not endowed us with a large amount of raw material, but it is good to know that in many cases our opportunities are equal to, if not greater than, the enemy s A special fiscal policy to meet the case may be required, and will undoubtedly be forthcoming if needed That is a matter we do not discuss, what we desire to point out is that there are just as clever and capable chemists in this country as in any other, who, if only they are given the same facilities, opportunities, and financial backing as the manufacturing chemists in Germany for example receive, would occupy the premier position This position is still held by us as discoverers and pioneers of research Here we have never lost predominance, but we have lost industrial supremacy owing to a steady and persistent refusal of the State to afford capital and encouragement necessary to sustain work and to bring it into the provinces of practical application The ground in many directions is being prepared, and if our manufacturers can be guaranteed that capital outlay on new extensions of business is not going to be destroyed by unfair competition when the war is over, we know that they will prove themselves capable of turning out goods of the highest standard In proof we may mention the rapid strides which the glass trade is making in supplying glassware equal in all detailed particulars to material hitherto obtained from the enemy Apart from special glass required in industrial applications, we find that many of our glass making firms are undertaking the manufacture of glass adapted for pharmaceutical purposes, optical lenses, X ray bulbs, thermometers, "shell" for the artificial human eye, glass also for the artificial lens, things never made a special department of before in the history of glass manufacture in this country This is only one example of the spirit that is steadily and surely growing amongst our chemists and manufacturers, and we may be sure that the same spirit is active in other departments of our industries

It is the great demand for munitions which makes it difficult to manufacture freely just now many well known medicinals and chemicals The curious fact is that the basis of munitions and of certain drugs is one and the same thing To take an example, the salicylates have as their starting point phenol, but so has picric acid The urgency of things gives the first call to an explosive and not to a drug, and so salicylic acid, aceto salicylic acid, and the salicylates are rare and dear This, of course, is no reproach to our chemists, they cannot make munitions and drugs at the same time when the raw material of both is the same, and when to finish the war at the earliest possible date is the supreme consideration Yet another example is that of benzene and its homologues, they are the foundation of dye making, and are also the basis of the great nitro explosives of the type of T N T, and for the moment the need of the explosive is more urgent than the need of the dye But we may reasonably expect that the lesson of the war is not going to be lost by the leaders of our chemical industries, and it is to be hoped that they will receive the support of our administrators Materials, finan cial backing, and all round fair dealing are the things that are asked, and our brains and workers will not fail us

The Status of the Certified Midwife

It is now 14 years since the provisions of the Midwives Act came into force in this country, and during this time the status of the certified midwife has gradually become more definite and the dis tinction more clear between her functions and those of the uncertified maternity nurse The same provisions have recently been extended to Scotland by the Midwives (Scotland) Act of 1915, with the modifications suggested by experience, and legislation in similar form will shortly come into force in Ireland The Midwives Acts prohibit any woman who is not certified under the Acts from

habitually and for gain attending women in child birth otherwise than under the direction of a qualified medical practitioner, but we repeat it because the meaning of the law appears to escape some doctors In certain disciplinary cases which the General Medical Council have recently had before them it has been shown that uncertified women have been in effect enabled to defy the law through the countenance, assistance, or connivance of qualified medical practitioners This has been done either by practitioners paying perfunctory visits to confinement cases and signing legal certificates and kindred documents required—for example, in relation to National Health Insurance or notification to authorites—or by their countenancing in other ways a pretence that the uncertified woman was acting under the direction of a qualified medical practitioner In some of the cases of this latter sort which have come to our knowledge the practitioner has acted inadvertently and without understanding the full mischievousness of his procedure, but in other cases this could hardly be pleaded

The Executive Committee of the General Medical Council has now characterised such conduct as discreditable and tending to the defeat of the due working of Acts of Parliament which are of the utmost importance to the welfare of the poorer classes and therefore of the nation, particularly at the present time The Executive Committee has therefore framed a draft notice for presentation to the Council at the November session stating that any registered practitioner who is proved to have covered an uncertified woman in the manner indicated will be liable, after the notice has been ratified by the Council, to have his name removed from the Medical Register The covering letter which will accompany this notice when issued adds that the General Medical Council regards it as the duty of registered medical practitioners to coöperate with the constituted authorities in helping to secure the strict and effective administration of the Midwives Acts That the practitioner's duty and enlightened interest here coincide can hardly be a matter for doubt at the present time There are far too few civilian practitioners now available to attend all the parturient women in the country, and if the medical man cannot attend a labour himself he should prefer the attendance of a woman with at all events the standard of attainment implied by the possession of the Central Midwives Board's certificate A certain conservatism in favour of old established practices, some still surviving anxiety regarding the competition of the certified midwife, or even ignorance of the provisions of the Act, may have resulted in the covering of an uncertified woman But the medical practitioner cannot any longer consistently with medical ethics or the law of the land give the uncertified woman the support of his authority unless he actually takes charge of the case himself

It may be felt that the penal provisions of the Midwives Acts, and the suggested notice of the General Medical Council press hardly upon patient and doctor in cases of emergency, and where the supply of certified women is not equal to the demand for them That this has not been forgotten is evidenced by a sentence in the covering letter calling the practitioner's attention to the fact that the penal provisions of the Acts do not apply to anyone rendering assistance in a case of emergency The position of the medical practitioner in regard to the obtaining of assistance from maternity nurses who are not registered by the Central Midwives Board, or whose names have been removed from the Register has recently been elucidated in a correspondence which appeared in our columns between a practitioner and the President of the Board Sir FRANCIS CHAMPNEYS stated that there was nothing to prevent a woman whose name had been struck off the Midwives Roll, or who had resigned, from acting as a monthly nurse under the instructions of the practitioner, with the proviso that the practitioner undertakes to attend the confinement whenever it occurs (day or night), even normal The Central Midwives Board in any case of dispute acts on the principle that the case belongs to the person who has undertaken to attend the confinement We think the medical profession may rest assured that their interests have been fairly considered by the constituted authorities

Annotations.

"Ne quid nimis"

SOLDIERS AND THE LAND

A CONFERENCE has been sitting recently to consider questions connected with rural reform, and among other points to which its attention has been directed has been the part to be played in rural reform by those who, when the war has finally ended, will be discharged from their country's service At the conference, which owed its origin to the Garden Cities and Town Planning Association, the importance of rapidly developing facilities for small holdings was insisted upon, but evidently doubts were felt as to the fitness of the class indicated for working small holdings and making a living out of them The conference, therefore, has recorded a conviction that—

1 For ex service men desiring to live on the land in the home country employment at wages, whether on farms or in schemes of reclamation or afforestation affords the only practicable opportunity at any rate in the first instance

2 That urban ex service men will not accept such employment unless wages and houses are greatly better than they were on the average before the war

3 That both in recognition of the services of our sailors and soldiers and on grounds of national expediency the need of a Government policy and legislation to effect such improvement in wages and housing is immediate and urgent

We are not prepared in any way to dispute the correctness of the conclusions arrived at, and regret the difficulties which are thus clearly indicated as lying in the path of a "back to the land policy and of its general and immediate development A vista of contentious political questions is at once opened up Can increased wages and better housing accommodation be provided by agriculture from its own resources, or would it be necessary to compass the desired result by means of State subsidies or protective measures at the expense of the community in general? The columns of THE LANCET are not adapted to the discussion of

such topics, and we can only record our opinion that "on grounds of national expediency" an extensive re migration of the urban population to rural districts is greatly to be desired It should find there the opportunity to live a healthier life than is possible in our great cities, but it will not find it easy to accumulate wealth, and there will be little in the way of the amusement to which it is accustomed to tempt it to remain. It should by its labours increase the food supply of our cities and thus afford a better chance of healthy life to the workers remaining in them This in itself would tend to compensate the country for any expenditure The difficulty, however, of discussing questions of this kind is great on account of the uncertainty as to what the position of our great trades and manufacturing industries will be when peace comes, and as to the temptations which they will be able to offer to their workers to remain with them

A GERMAN DOCTOR S EXPERIENCES IN LONDON DURING THE WAR

Dr J P zum Busch has contributed to the *Deutsche Medizinische Wochenschrift* his experiences in England during the past two years He is a medical graduate of Freiburg and a Member of the Royal College of Surgeons of England of many years' standing, and was for over 22 years prior to the war honorary surgeon to the German Hospital in London. He remained at his post until the beginning of May of this year At the outbreak of the war, while the work of the hospital was much increased, the staff became more and more limited by resignations At the same time the number of occupied beds was increased from 160 to 200 Dr zum Busch became himself resident at the hospital in order to assist with the pressure of work, especially at night He states that after labouring continuously for a year and three quarters, during which time he 'saw no green field' (his passport limiting him to a radius of 8 kilometres), he was interned at Stratford at three days notice and repatriated on June 21st, owing, as the editor of the *Deutsche Medizinische Wochenschrift* alleges to representations made by himself, this being an entirely gratuitous and unlikely assumption. Dr zum Busch has for many years contributed letters on current affairs in England to the German journal, and this latest communication is entitled "My last letter from England. He naturally writes with considerable freedom to a circle of readers whom he knows to be sympathetic He describes the disabilities under which the hospital laboured criticises the restrictions imposed upon its work, and gives a vivid picture of the life in an internment camp, as he himself experienced it Dr zum Busch states that life would have been quite insupportable for him if he had not found constant comfort in his work and in the marks of kindness and affection shown him again and again by his good English friends But he records with feeling that on the occasion of his internment no word of regret reached him from the management of the hospital for which he had laboured so long The editor of the *Deutsche Medizinische Wochenschrift*, who contributes from week to week caustic editorial comments on the general as well as the medical aspects of the war, dots his colleagues is to some purpose and expresses the conviction that his last English letter will remain as documentary evidence of "British humanity and gratitude

ACUTE POLIOMYELITIS

THE official weekly bulletin of the New York City Health Department for July 22nd has just reached us, and confirms the existence in New York of an epidemic of poliomyelitis which the telegrams have already foreshadowed Attention in this country has been called to the epidemic by the distressing news that the daughter in law of the American Ambassador in London has succumbed to the complaint For the week ending July 15th, 933 cases of poliomyelitis were notified, being considerably more than the sum of notifications of diphtheria, measles, and scarlet fever During the same week 169 deaths occurred, as against 52 from all other infectious diseases 143 of these were under 5 years of age, 25 between 5 and 15, and only 1 above this age Of the 169 deaths 109 were boys and 60 girls The bulletin contains information for the public regarding the disease and suggestions how to guard against it Amongst the latter are contained the injunctions "Keep your children by themselves as much as possible, do not allow them to visit stuffy moving picture shows or other places where there may be a large gathering of children. Children should not be kept in the house, they should be out of doors as much as possible and not in active contact with other children of the neighbourhood. Do not take your children with you when you go shopping, do not allow your children to be kissed. Remember that children need fresh air in the summer time, and outdoor life is one of the best ways to avoid disease" The bulletin adds that it is perfectly safe for the children to frequent parks and playgrounds if only two or three of them play together, but that they should not play in large groups and should not come in contact with children from other parts of the city These measures contain nothing new, but are instructive as being the advice of a public health department in view of an unprecedented outbreak. For the instruction of medical men a number of clinics have been arranged at the various hospitals of the city, in many cases daily demonstrations being given

IN HONOUR OF VERDUN

"A Tribute in Honour of France, July 14th, 1916, is a pamphlet describing how France obtained Metz and Verdun, written by Sir Henry Morris, and sold for the benefit of the Red Cross Fund by Messrs John Bale, Sons, and Danielsson The pamphlet arose out of a correspondence in the *Times* alluding to the eating of the bodies of the slain during the siege of Breisach in 1638 A quotation was made by a correspondent from 'Professor Blackie s Letters, published in 1910, alleging that Metz was stolen from Germany some 200 years ago by Louis XIV Sir Henry Morris, in a reasoned reply, compares the history of Metz and Breisach and shows that Professor Blackie made a mistake Further, he gives concisely the early, mediæval, and modern history of Metz, and describes how France obtained Verdun. The statement is often made that in 1552 Metz was treacherously taken possession of by the French, and that although Charles V besieged it the French kept it till it was ceded to them formally in the year 1648 by the Peace of Westphalia. It is not clear what is meant exactly by the word "treacherously' in this connexion Our notion of national patriotism has been of gradual growth, and there is no doubt that in the sixteenth and seventeenth centuries

many cities still retained such pride in their own independence and importance that their individual history was altered by their attitude towards their big neighbours Sir Henry Morris's historical note is most interesting, and will be read by many now that the word Verdun is not only on all our lips but speaks to our warmest feelings

THE METROPOLITAN WATER-SUPPLY

DURING the month of May the mean rainfall over the Thames basin was 2 06 inches, which represents 0 10 inch above the average mean rainfall for this month during the previous 33 years With increased rainfall there is generally shown to be a deterioration in the chemical quality of the raw river waters in some respects The results of the chemical examination during May showed that the raw Lee water deteriorated as judged by the albuminoid nitrogen, permanganate, and colour tests but there was no change with regard to its turbidity The raw Thames and New River supplies similarly deteriorated in quality as judged by the albuminoid nitrogen tests, but improved as regards the permanganate, turbidity, and colour tests The samples collected at the different works were, generally speaking, clear, bright, and free from suspended matter, the filtered waters in fact showing an improvement in quality during the month as judged by the albuminoid nitrogen, permanganate, and colour tests All three raw waters contained more bacteria than their respective averages, while the filtered waters, generally speaking, yielded not unsatisfactory results, as will be seen from the following statement Whereas 78 3, 86 9, and 34 8 per cent of the samples of raw Thames, Lee, and New River water respectively contained typical B coli in 1 c c (or less) of water, 90 9, 60 9, and 93 9 per cent of the filter water derived from these supplies (placing them in the same order as above) contained no typical B coli even in 100 times as much water—namely, 100 c c

CHINA AND WESTERN MEDICINE

NATIVE medical practice in China is still founded on Taoism, which became in the hands of its later interpreters a quest for a kind of philosopher s stone to induce long life The text books are those of a thousand years before the Christian era, and nothing of modern application, except perhaps acupuncture, has emerged from them It now appears that the medicine of the Western world is beginning to take firm root, a fact to which fresh testimony is borne by the holding of the first annual conference of the National Medical Association of China, of which we publish a report in another column The report is belated, but the postal facilities of the world have been much curtailed of late, and the internal condition of China very disturbed The free interchange of thought and opinion has largely homogenised thought and practice in this country during the last half century, and international conferences had begun to do the same for Europe before the war broke out, for it had already become possible for a student with a smattering of a foreign tongue to spend with advantage one or more semesters at a university other than his own without finding the medical and surgical practice too foreign for him to assimilate The foundations of similar things are now being laid in China, and, if recent experience does not mislead, the superstructure is likely to rise rapidly Dr Yen, in his presidential address to the association, spoke of some of the public health problems to be faced in China, which are seen to be the same wherever the culture of the occident has penetrated The consumption of alcohol and of patent medicines seems fated at first to rise as the level of civilisation, in our modern conception of the word, rises It is discreditable to Western pioneers that this should be so, and we trust that China may find a short way of dealing with the evils Allusion was made at the conference to many familiar Western problems it was stated, for instance, that an attempt to train the old fashioned nurse to become a clean and efficient midwife had failed in China The institution of a State Medical Service to meet the necessities of public and private practice was proposed, and it is possible that in a country with no old conceptions of medical practice, and no vested interests, as we understand them, the drastic principles of such a service might be adopted with greater ease than they can be in this country

METROPOLITAN HOSPITAL SUNDAY FUND

THAT in spite of the heavy demands made on the purses of the charitable in connexion with the war, and in spite of the vast increase in the cost of living, the sum collected by the Metropolitan Hospital Sunday Fund should have fallen short by only £2600 of last year's total is a great satisfaction to the supporters of this valuable charity The actual sum collected for the current year up to the meeting of the Council on Tuesday last was £68,000, of which £66,430 will be distributed among 248 hospitals, convalescent homes, dispensaries, and nursing institutions, 7½ per cent of the total being applied to the purchase of surgical appliances On the motion of Lord Knutsford, the General Purposes Committee were empowered to consider the advisability of having a fixed date for Hospital Sunday during the winter months, on the ground that a better response to the appeal would result at that season of the year

THE BOARD OF SCIENTIFIC SOCIETIES

ON the initiative of the Royal Society a Board of Scientific Societies has been established for the furtherance of the following objects Promoting the coöperation of those interested in pure or applied science, supplying a means by which the scientific opinion of the country may, on matters relating to science, industry, and education find effective expression, taking such action as may be necessary to promote the application of science to our industries and to the service of the nation, and discussing scientific questions in which international coöperation seems advisable The Board at present consists of representatives of 27 scientific, including technical societies The regulations give power to add to this number and to appoint as members of subcommittees individuals who are not necessarily connected with any of the constituent societies An executive committee has been appointed consisting of the following members Sir Joseph Thomson, O M P R S (chairman), Dr Dugald Clerk, F R S, Sir Robert Hadfield, F R S Mr A D Hall F R S, Professor Herbert Jackson (honorary secretary), Sir Alfred Keogh, K C B Sir Ray Lankester K C B, F R S Professor A Schuster, Sec R S Sir John Snell, Professor E H Starling F R S, Lord Sydenham, F R S, and Mr R Threlfall F R S

THE SHIAH PILGRIMAGE AND THE SANITARY DEFENCES OF MESOPOTAMIA AND THE TURCO-PERSIAN FRONTIER

By F G CLEMOW, M D EDIN, C M G,

BRITISH DELEGATE TO THE INTERNATIONAL BOARD OF HEALTH AND PHYSICIAN TO H M EMBASSY CONSTANTINOPLE.

III [1]—THE SANITARY DEFENCES ON THE TURCO PERSIAN FRONTIER.

THE total length of the Turco-Persian frontier from the neighbourhood of Mount Ararat on the north to the Persian Gulf on the south is approximately 800 miles The greater part of this line—all indeed, except a short portion at the southern extremity—passes through highly mountainous country inhabited by nomadic or semi nomadic Kurdish and Arab tribes The mountains rise in many places to 10,000 or 12 000 feet and are only crossed at long intervals, by certain more or less well-defined routes of communication between the two countries. In the report of the Commission of Inspection a careful study was made of the principal of these routes of the various tribes living on or near to the frontier line, of their seasonal migrations and of the through movement of passengers and pilgrims from one country to the other Unfortunately, the manuscript of this chapter of the report was not saved with the other papers, and is still in Constantinople and it cannot be fully reconstructed here The following statements may, however, be made

Firstly as regards the northern third of the frontier from Ararat southwards to Shemdinan the sanitary defences were dealt with by the earlier Commission, that of July 1911 already mentioned in the first of these articles That Commission found that the sole lazaret in this region, that of Kizil Dizé near to Bayazid was in a deplorable condition and recommended the construction of a proper sanitary station there and of four secondary stations elsewhere

In the southern two-thirds of the frontier apart from the many minor routes of communication already referred to, there is but one great line of through traffic—that which passes from Kermanshah in Persia through Kasr i-Shirin to Khanikin on the Turkish side of the frontier, and thence, through Kizil Robat Shahraban and Bakuba, to Bagdad As compared with this line all other routes are of minor significance Along many of them no doubt there is a considerable amount of movement of passengers and goods but it is mainly of a local character and the quantity of what may be called long distance through traffic by these routes is apparently very small indeed. In this local movement are included the seasonal migrations of the Kurdish or other tribes already alluded to Practically the entirety of the Shiah pilgrim traffic from Persia to the holy places of Mesopotamia passes by the Khanikin route

Along this part of the frontier the only existing sanitary defence consists of a lazaret at Khanikin and of health offices at Rayet Suleimanieh and Mendeli, an office formerly existing at Revanduz was done away with a few years ago The personnel of these offices consisted solely of sanitary clerks and sanitary guards mounted or on foot whose main duty it was to collect the sanitary tax of 10 piastres [2] (about 1s 8d) on all persons and of 50 piastres on all dead bodies entering Turkey from Persia and of endeavouring to prevent "contraband in dead bodies—a subject to be dealt with later Scanty as these sanitary defences may seem for for such an immense length of frontier the Commission did not propose to create any new lazarets or sanitary stations save at Mendeli near the southern end of the line where there is a considerable through movement of both persons and dead bodies and where it was proposed to create a small observation and disinfection station

It was not recommended to establish new stations at other points as it was held that on the one hand the danger to public health offered by the small amount of through traffic along the various minor routes was not very great and that on the other any attempt to subject to proper sanitary control the unruly tribes in their seasonal migrations was foreboded to failure while the practical obstacles in the way of establishing sanitary stations in these remote and mountainous districts would have been exceedingly difficult to overcome

Many of the names mentioned above have recently become familiar to the general public, and will become still more so as the war progresses The arrival of Russian forces at Revanduz was announced some time ago, the Russo-Turkish battle line has recently swayed between Kermanshah and Khanikin, and we all hope to see the Russian army descend from Khanikin to Bagdad by the route already mentioned That route is, and has been in the past one of the principal lines of military invasion and in like manner it has been the most frequent route by which epidemic disease has passed from Persia to Turkey or from Turkey to Persia The Khanikin lazaret has been Turkey s sole defence against the former danger, Persia on the other hand, has had no lazaret upon her side of the frontier though of recent years she has projected the construction of one at or near to Kasr i-Shirin Disease has as frequently passed in one direction as in the other as will be seen from the following brief summary of the history of cholera and plague in the frontier region

The Frontier as a Channel of Importation of Disease

In the first great pandemic of *cholera* that of 1819–22, the disease was imported to the Tigris valley and in the autumn of 1821 passed into Persia, as the result of a war between Turkey and Persia. In 1851 cholera was imported from Bagdad to Suleimanieh and Revanduz on the frontier and in the following year was epidemic on both sides of the frontier line. In 1856 the disease was epidemic in Persia, from Kermanshah it spread to Khanikin where as also on the road between Khanikin and Bagdad, the pilgrims suffered terribly, and later they carried the infection to Bagdad, Kerbela, and the Euphrates valley Cholera followed a similar route in 1860 In 1861 it was imported from Persia to Mendeli and Bakuba, and thence to Bagdad, Kerbela, and Nejef In 1865 it appears to have crossed the frontier from Turkey into Persia, near Suleimanieh. In 1867–69 the disease was epidemic in Persia and is said to have crossed the frontier into Turkey from Kermanshah In 1893 cholera appeared in Mendeli and in Khanikin and as it was already epidemic in Persia it was probably imported from there In 1904 the epidemic whose course from Syria to Mesopotamia in 1903 was traced in the preceding article, was apparently introduced into Persia from Turkey and caused an excessively severe and fatal epidemic there In subsequent years cholera was frequently epidemic in Russia and occasionally spread thence into Persia and Turkey in Asia, and in 1910 it once more passed down from Kermanshah, through Khanikin to Bagdad

During the latter half of last century *plague* was as stated in the preceding article endemic and sometimes epidemic, at places in the Euphrates valley and on both sides of the Turco-Persian frontier On the Turkish side the principal outbreaks occurred in the Hindieh marshes along the lower Euphrates, about Djaara and Shenafieh in Nejef, in Bagdad, at Bedra Zorbatia and Mendeli near the southern end of the frontier and among the Muntefik tribes On the Persian side there were outbreaks of the disease at Maku near Lake Urumiah in and near Hamadan at Saouj Boulak, Jiranrao, Merivan Uzunderé Mahideshte and other places along the frontier line The important fact to notice, however, is that, while the infection was occasionally carried from one side of the frontier to the other the result was always confined to a localised epidemic and the disease has shown no tendency to spread from the centres named to other parts of the world

The Khanikin Lazaret

The utility and necessity of this institution will readily be realised from what was said above as to the overwhelming importance of the Khanikin Bagdad route, as compared with all others that cross the frontier This necessity will become still greater in future if the various schemes put forward for railway development in Turkey and Persia are realised Of these the most important in the present connexion will be the proposed extension of the Bagdad Railway to Khanikin and Kermanshah This will start from the main line not at Bagdad but at Sumeikha 60 kilometres north of Bagdad It will cross the Tigris and ultimately join the usual caravan route at Kizil Robat whence it will pass to Khanikin and Kermanshah. Meissner Pasha the chief engineer of the

[1] Parts I and II were published in THE LANCET of August 12th p. [illegible]

[2] A Turkish piastre is of the value of [illegible]

Bagdad Railway (and formerly of the Hedjaz Railway), informed me that this line is planned to pass quite close to—within 300 metres of—the present lazaret at Khanikin, there will, therefore, be no need to transfer the lazaret from its present admirable site

Other projected railways are destined to increase still further the importance of the Khanikin lazaret The principal of these will be the line, already partly opened, connecting Julfa on the Russo-Persian frontier, the terminus of the Tiflis-Julfa railway, with Tabriz, Hamadan, and Kermanshah. The opening of these new railways will certainly increase very considerably the number of Shiah pilgrims coming from Persia, the Caucasus, and Central Asia to the Shiah holy cities of Mesopotamia This expectation is based on many precedents. Thus among the many striking effects of the opening of the Trans Siberian Railway at the end of last century was a very marked increase in the number of pilgrims to Meshed, in northern Persia, close to the Russian frontier There is a famous Shiah shrine here, over the tomb of Imam Riza, which has always attracted many pilgrims, and which will be referred to again in the following article Notices in the local languages were hung in the principal stations of the then new railway, and special reduced fares were offered to Shiah pilgrims, with the result just stated So, too, the opening of the Hedjaz Railway, which was completed as far as Medina in 1908, has led to a large increase in the number of pilgrims travelling from Damascus to Medina Other examples of a like nature could be quoted from India and elsewhere

But the opening of the new and projected railways in Persia and Mesopotamia may be confidently expected to increase not only the number of Shiah pilgrims to Kerbela and Nejef, but also the number of Moslem pilgrims proceeding to Mecca and Medina, in spite of the distances involved For with the opening of these new lines such pilgrims will be able to travel by rail from their homes in these Asiatic provinces direct to Medina A glance at the map will show that they could take train by the new Persian railways to Kermanshah, thence by the Bagdad extension line to Bagdad, and thence by the main Bagdad line to Aleppo From there a line connects, through Homs and Hama, with Damascus, and from Damascus the Hedjaz Railway runs for 800 miles, through "the desert and the sown," to Medina, and may ultimately be extended to Mecca. The great importance of these railways from a public health point of view, and the increased danger of the spread of epidemic disease by their means are obvious, more particularly as the majority of passengers will be pilgrims, a class by whom disease has so often been spread in the past and for whom specially strict measures are always required under the International Sanitary Conventions

Some idea of the number and nationality of persons passing through the Khanikin lazaret may be gathered from Table I

TABLE I

Year	Persians		Russians		Turkish		Indians		British		Barbaris.		Afghans		Total	
	P	N	P	N	P	N	P	N	P	N	P	N	P	N	P	N
1909-10	21 023	1591	1726	188	352	14	9	2	—	—	—	—	182	67	26 460	1862
1910-11	42,803	4941	1762	193	3659	27	6	4	—	—	—	—	129	66	48 364	5231
1911-12	20 450	2173	896	90	2387	4	—	3	—	—	383	131	61	6	24 632	2407
1912-13	26 967	6613	1111	125	1428	10	2	—	3	—	—	—	43	3	29,554	6751

P = paying N = non paying The "non paying" include children under seven and persons pleading indigence who were exempted from the sanitary dues

These figures, however, can only be regarded as approximately correct Many pilgrims and passengers, it is believed escape registration, and the nationality of those registered is often very imperfectly ascertained Thus the numbers of "Persians" should probably be less than appears in the table, and those of "Russians" greater since there appears to have been a tendency to register all persons coming across the frontier as "Persians"

In addition to passengers and pilgrims a large number of dead bodies on their way to the holy burying grounds of Kerbela and Nejef, annually pass through the Khanikin lazaret The number and nationality of these bodies during the years 1909-14 are shown in Tables II and III —

TABLE II —*Number of Dead Bodies Arriving at Khanikin*

Year	March	April	May	June	July	Aug	Sept	Oct.	Nov	Dec	Jan	Feb	Totals
1909-10	15	17	18	8	20	43	436	414	1933	555	29	13	3572
1910-11	28	77	137	83	130	582	600	1043	2139	103	20	35	4922
1911-12	6	56	75	16	88	338	148	450	895	245	77	4	2338
1912-13	54	9	22	26	18	179	229	1939	1749	248	23	[illegible]	4,39
1913-14 ..	16	3	10	19	56	164	93	1532	1724	371	33	19	[illegible]
Averages	24	32	52	30	63	261	302	1076	1639	311	33	22	3900

TABLE III —*Nationality of Bodies Arriving at Khanikin*

Year	Afghans	Russian	Persian	Turkish	Totals.
1909-10	7	1084	2468	13	3572
1910-11	4	930	4024	24	4982
1911-12	3	487	1903	—	2393
1912-13	—	1258	3241	—	4499
1913-14	—	1234	2817	—	4051
Averages	2 8	998·6	2891·6	7 4	3900·4

From these tables it will be seen that an average of 34,000 travellers and 3900 corpses pass through Khanikin every year The monthly table shows also that the movement of dead bodies—and the same is true of living persons—is at its highest in the months from August to December and at its lowest from January to July This seasonal variation will be referred to again in a later article, dealing with the Shiah pilgrimage

Hitherto the sanitary office and the lazaret at Khanikin have been two separate establishments, situated at some distance from each other Pilgrims and passengers with their pack animals, flocks, and dead bodies, were directed to the former when there was no epidemic disease in Persia, and to the latter when there was. The "office" consisted of a large caravanserai of the usual type found in these regions—that is to say, of a series of arched recesses and enclosed chambers, built round the sides of a large square enclosure It was here that the sanitary taxes were collected and the dead bodies inspected It should be explained that for many years past no dead bodies were admitted to Turkish territory if death had not occurred at least three years before and the bodies been reduced to the skeleton state (*en état d'ossements*) Attempts at contraband—to be discussed more fully in a later article—have, however always been frequent, in order to avoid the payment of the sanitary dues When detected at Khanikin, the bodies were confiscated and kept in a special depôt prepared for the purpose until claimed by the relatives or bearers, when they were delivered up on payment of the dues. All bodies found to have been buried less than three years ("fresh' bodies) were seized and buried in a cemetery situated some 200 metres from the office The Commission proposed to do away with this sanitary 'office' altogether and to concentrate the entire sanitary service in the reorganised lazaret An annual rental of P 20 000 (£166) would thus have been saved to the Turkish Government

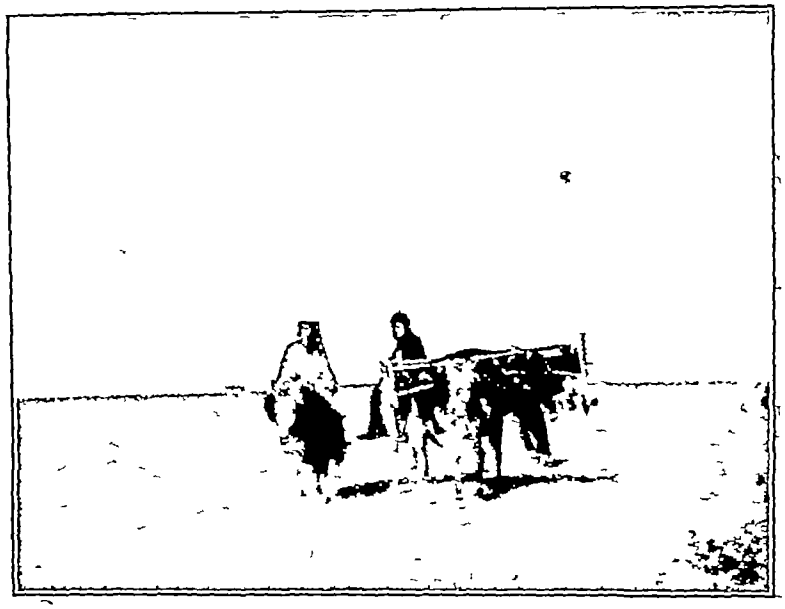
No attempt will be made here to give a detailed description of the Khanikin lazaret as the Commission found it. It occupied an excellent site a short distance from the eastern side of the town and close to the road or track coming from the Persian frontier The site measured 530 metres in length and 160 metres in width making a total area of 84 800 square metres It had once been surrounded by a wall but nearly all traces of this had disappeared On this vast site there were only two buildings The one consisted of a large porch with two wings containing a series of rooms built some 40 or more years ago by the greatest Turkish statesman of modern times, Midhat Pasha, when he was Vali of Bagdad It was extremely solidly built and though in a bad state of repair it was proposed to consolidate it and incorporate it in the plan of the new lazaret. The other building was a disinfecting pavilion. Though constructed comparatively recently it had been so badly planned and built of such inferior material that the Commission saw no other course open but to recommend its demolition and the construction

of a larger and better pavilion on another portion of the site

Complete plans and estimates for a practically new lazaret were prepared, from the Commission s indications, by a French architect, who accompanied the Commission from Bagdad to Khanikin These are, of course, omitted here The plan comprised firstly a large enclosure, where the collection of dues and "revision" of corpses would take place, whether plague or cholera was or was not epidemic in Persia at the time In ordinary times the passengers would not go farther than this enclosure, but if plague or cholera were present in Persia they would pass to the disinfecting pavilion to be erected in an adjoining enclosure The rest of the site would have been occupied by a series of "cordons,' by hospitals for infectious and non-infectious cases, by houses for the lodging of better class passengers, by residences for the doctors and staff, and by the various other accessories of a properly organised sanitary station

Land quarantines have, of course been long since condemned by the International Sanitary Conferences, and this station was intended to be occupied solely by groups of passengers among whom a case of cholera or plague had actually occurred Certain special conditions obtaining at this land frontier had to be taken into consideration and provided for in the plan of the lazaret Thus the greater number of the groups of travellers arriving at Khanikin are accompanied by many animals—such as horses donkeys, camels and others It would be practically impossible to separate them from these animals Any attempt to do so would lead to extreme confusion and acute quarrelling as to the ownership of the respective animals, and a special staff would be required for feeding and watering the latter if they were quartered apart from their owners Consequently both in the enclosure for the "revision' of bodies and in each 'cordon' it was proposed to have long hangars" 10 metres wide and other special arrangements for the accommodation of the animals It was freely admitted that such an arrangement is very far from ideal, but it was realised that, apart from the practical difficulties in the way of separating the animals from their owners, an attempt to do so would probably lead to the open revolt of the latter, thus rendering impossible the application of further sanitary measures

FIG 3

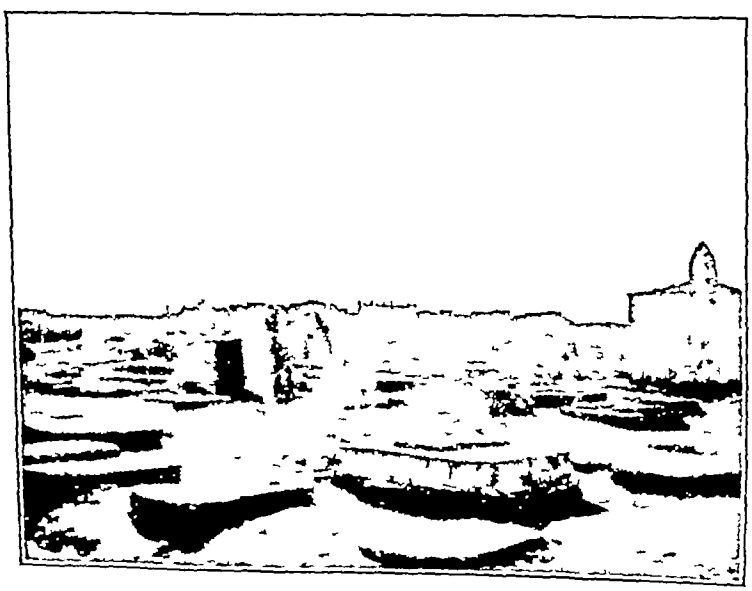


Shiah corpses approaching Nejef

A few words may be said as to the systems of water supply and of excreta disposal which it was proposed to adopt in the new lazaret The water would continue to be taken as in the past, from a small stream, known as the Hadji Kara Sou, which flows near the west side of the lazaret site, at a distance varying from 30 to 90 metres This stream rises in the river El Wend upon which the town of Khanikin is built, at a point well above the town, and at a distance of about six kilometres from the lazaret The El Wend is a branch of the Diala river which again, is a branch of the Tigris into which it flows a few miles south of Bagdad The water of the Hadji Kara Sou is of the usual impure character found in these regions, and arrangements for its purification before distribution similar to those proposed for the Basra lazaret, and briefly described in the preceding article were also proposed for this lazaret

As at Basra, it was recommended to have a series of trough closets in all parts of the lazaret with automatic flushing tanks and drains leading to *fosses a fond perdu*" These would be placed well outside the lazaret enclosure and on the opposite side from the source of the water supply The soil here is composed of sand and gravel, and would it was thought, lend itself to this system of excreta disposal It was intended to construct without delay the greater part of the new buildings provided for in the plan, while leaving space for certain additional 'cordons' and buildings to be put up if, after the opening of the new railways, additional accommodation for pilgrims and passengers were found to be necessary The estimated cost of the works to be put in hand at once was 17 000 Turkish liras (or £15 300 sterling), and that of the additional works about £T 2000 making a total estimate of £T 19 000 (or £17,100 sterling) These sums would have been taken from the £T 280 000 which, as explained in the opening article had been voted for the reorganisation of all the Turkish lazarets

FIG 4



In the Cemetery of Nejef

(To be continued)

NATIONAL MEDICAL ASSOCIATION OF CHINA

THE FIRST ANNUAL CONFERENCE AT SHANGHAI

THAT Western medicine is making rapid headway in the ancient land of China is shown by the following account of the first conference of the National Medical Association of China which was held in Shanghai last February It may interest our readers to learn that the secretary (now President) and moving spirit of that Association is Wu Lien Teh, M D Cantab, well known to many English friends as Dr G L Tuck The international postal difficulties existent just now, as well as the political unrest of China, are illustrated by the fact that the report of the meeting has reached us so late

The following were the original officers of the Association F C Yen, M D D T M, President, Wu Lien Teh, M A M D, secretary, E S Tyau M D, D P H, treasurer Way Sung new, A B M D, was the secretary of the conference, and Dr T K M Siao and Dr J H Liu were the associate secretaries

MONDAY, FEB 7TH

The first day's session was held in the Martyrs' Memorial Hall, Shanghai There was an attendance of 55, a considerable number of the delegates being from other cities

Dr YEN, in his presidential address, after welcoming the members present, and expressing gratification that the attendance was sufficiently large to insure the success of this the first annual conference of the Association dealt with various matters connected with the work of the Association, and urged that all should work as a united body for the best interests and welfare of the medical profession He advised that their efforts be concentrated on a few undertakings which can best be done by Chinese, or on work which foreigners were prevented from doing Their own time could be better spent in spreading medical knowledge than in research It was more important for them to translate medical books than to write articles for foreign medical journals

Dr IDA KAHN (Nanchang) read an instructive paper on Hygiene in the Home Beginning with the choosing of the site of the house, the lecturer went on to consider its construction, furnishing and equipment from a sanitary standpoint, and its sanitation, concluding by showing the adaptation of these things to family life and duties

Dr WU LIEN TEH (Harbin) followed with a paper on the Foundations of Modern Hygiene in China. He stated that regulations for the preservation of good health were published in China as far back as B C 700 Nevertheless, for many centuries the adoption of progressive ideas to cope with existing problems had not made enough headway, a fact which was especially noticeable at the present time in the matter of the prevention of infectious disease, which might be regarded as the essence of modern hygiene

Dr W W PETER, of the Council on Public Health of the China Medical Missionary Association, spoke on Preventive Medicine, discussing the paper read

In the evening Dr YEN gave a public lecture on the Duties of the Medical Profession, first to the public and then to the profession itself He spoke of the appalling consumption of alcohol and tobacco the spread of disease by the careless use of common towels and eating utensils, the tremendous death roll, and the folly and extravagance of parents spending $2000 in two months for worthless Chinese medicine for an infant whose life would have been saved had a physician been called The lecturer devoted considerable time to an exposure of the worthlessness and harmfulness of the varieties of patent medicines that are being shipped to China by the ton Chinese dispensaries all over China are largely stocked with these imported articles, and even Chinese drug dealers themselves instead of devoting their energies to manufacturing pure drugs, are from year to year increasing their output of Chinese made patent medicines Some of the large shops in Shanghai handle scores of these "medicines," the claim being made for one medicine that it was able to grow a new foot to replace one that had been injured in infancy

TUESDAY, FEB 8TH

Dr LUJIEN TSAO (Nanking) read a paper on Medical Education of Nurses She outlined the history of nursing in China, and mentioned the frequency of meeting nurses who were uneducated and even illiterate who did not know how to count the pulse and who distinguished medicines by the colour of the ingredients But these days she said were passing, a new generation of nurses having come into being, the great incentive for this lying in the training of a better class of women, who often belong to the best families. She detailed two important spheres of work for nurses—namely (1) in social service, where they could teach the people the application of modern hygiene to householders, and (2) in the promising work of midwifery In regard to the latter, she regretted to say that an attempt to train the old fashioned ignorant nurses in modern cleanly ways had failed and she came to the conclusion that midwives must b trained from the beginning, if in America 20,060 women died yearly from the effects of child bearing, the number must be very much larger in China

In the absence of Dr S P CHEN (Peking) superintendent of the Peking Isolation Hospital a paper in his name was read by Dr ABEL TANG Dr Chen classified the medical schools of China into those founded by the Government and those founded by missionary societies He supported the proposal to have a uniform system of nomenclature in Chinese In the meantime the English language should be used, but German should not be discouraged A general examination should first be passed, and he proposed the following measures (1) Establishment of a Central Board of Control, (2) reorganisation of existing schools, (3) well equipped hospitals, and (4) provision for post graduate study

Dr J W H CHUN (Harbin) sent a paper on Medical Education which was read by Dr E B YOUNG (Changsha) He gave the latest obtainable list of medical colleges and referred to the scheme of the Rockefeller Foundation by which the education of medical students and nurses would be improved

Dr J H LIU (Shanghai) read a paper on the same subject, in which he discussed whether the Chinese Government and people should go ahead independently of the foreign institutions However extensive the schemes of the Rockefeller Foundation may be, he insisted that the Chinese must do things for themselves He proposed that the conference should pass a resolution to the Board of Education urging the Government to improve the state of medical education in the country

The foregoing papers were discussed by several foreign doctors who have devoted years of work in China to teaching Chinese students, and who took occasion to express the pleasure they felt at seeing so many men, once their pupils now qualified physicians

Mr C J DAVENPORT (Shanghai) said this conference was being held at the psychological moment for medical education in China. He appealed to Chinese doctors to have the proper spirit in treating the sick and suffering and not to think only of getting rich through the profession

Dr H S HOUGHTON Dean of the Harvard Medical School discussed the scope of medical education First he said we must create a demand among the Chinese for modern medicine Secondly, we must train nurses Thirdly it is not wise to adopt in China a definitely crystallised curriculum Rather should the habit of observation critical scientific reasoning be developed among the students and a right spirit be conserved

Mr D DUNCAN MAIN (Hangchow) spoke humorously on the need of providing physicians of the rank and file for dealing with disease in China.

Mr J G CORMACK Principal of the Union Medical College Peking, was pleased to hear from the Chinese speakers that they would try to develop medical science themselves and not depend entirely on the assistance of foreigners

Dr MARY FULTON, for a long time Principal of the Hackett Medical College for Women in Canton and the first person to train lady doctors in China emphasised the need of a Central Medical Board before which all practitioners should appear

Dr J B NEAL, Principal of the Tsinanfu Union Medical College and Dr GILLISON (Hangkow) spoke words of congratulation and encouragement to the Association

In the evening Dr WU LIEN TEH gave a lecture on How to Live a Healthy Life A large and appreciative audience was both entertained and instructed during the hour in which Dr Wu addressed them As a Shanghai newspaper remarked if half of his hearers followed Dr Wu's excellent advice there would be much less work for the doctors

WEDNESDAY, FEB 9TH

The session was opened by Dr C YOONPING YUI (Shanghai) with a paper on Medical Text-books and Publications in China. Dr Yui contended that the Chinese whether they have been educated in Europe, America, or Japan, should teach medicine in their mother language, he considered that only under exceptional circumstances should new characters be invented, as the Chinese language is already too difficult In this respect Dr Yui said that he was not in full agreement with the matured opinion of the China Medical Missionary Association Nor did he approve of the blind acceptance of Japanese terms by Chinese doctors Many of the terms depend upon mere tones and he instanced characters representing typhoid fever, diphtheria plague, protoplasm and organic compounds The difficulties in translation he said, lay in the great difference between the European and Chinese languages Most doctors engaged in translation work had to depend upon Chinese literary men who know no science or upon scientific men deficient in both Chinese and foreign languages

Dr ABEL TANG (Shanghai) also read a paper on Chinese Medical Books and Publications He regretted that Chinese medical men, unless they are conversant with foreign languages, have to depend upon translations No time should be lost in producing a Chinese official medical nomenclature

The general discussion was opened by Dr NEAL (Tsinanfu) who agreed with the opinion expressed by Dr Yui and Dr Tang and assured his Chinese colleagues that the foreigner s work in China was only temporary, the wish is only to see medical education firmly established

Dr LI (Peking) as a graduate from Japan explained the Japanese reasons for the adoption of their terms Popular Chinese terms are not accurate enough, and one must be accurate in medicine above all things

Mr CORMACK laid stress on simplicity clearness and elegance in the adoption of terms He instanced the word 'nerve" which could be translated in Chinese as "brain thread" and not as 'brain tendon"

Dr WANG (Changsha) said that public opinion could not be overlooked, and nothing should be done unless the leaders of education approved The missionary and national associations should unite with the well organised Kiangsu Educational Association to come to a decision and petition to Central Government

Dr MCALL said that modern medical education may be compared to an infant which must and will grow, and the proper steps should be taken now for its development

Dr W H VENABLE (Kashing) President of the China Medical Missionary Association gave a word of welcome to the conference

In the evening Dr ARTHUR STANLEY (health officer Shanghai) gave a most instructive and interesting lecture on Quack Medicines in the course of which he deplored the fact that many foreign trained Chinese physicians in Shanghai were working in association with drug stores

THURSDAY FEB 10TH

The fourth day s session began with a paper by Dr P M JIT (Tientsin) read by Dr CHOW on the Standards of Medical Practitioners in which he dealt with the difficulties attending the determination of a uniform standard for medical practitioners in China. Dr Jee supported the proposal for the establishment of a Central Medical Board under the auspices of the Peking Government

Dr H T CHIANG (Tayeh) sent a paper on the Status of Medical Practitioners which was read by Dr W P CHUNG In this paper medical practitioners in China were classified as follows 1 The old fashioned native physicians whose only diploma was their signboard 2 Nurses and assistants who had been trained in mission hospitals These are a little better than the first group but some are for making money only and do not work for the benefit of humanity This class, he said are often guilty of criminal practices 3 Graduates from Union Medical Schools are pretty well trained practically though not well versed in the science of medicine 4 Graduates from Japan 5 Doctors properly qualified in the colleges of Europe and America. Dr Chiang pressed for the early establishment of a Central Medical Board for the registration of all practitioners He urged the sending abroad of more students for the study of medicine, and said that the government should subsidise the existing medical colleges in this country

In the discussion on 'Medical Standards," Dr MERRINS (Shanghai) mentioned the ethical standards which should govern conduct of the physician individually, his attitude towards the members of his own profession and his relations with the State In view of the ignorance of medical subjects and the poverty of the great mass of the Chinese people, he urged the need of establishing a State Medical Service which would give a settled position to medical men and enable them to exercise government authority in introducing and enforcing measures necessary for the public health

Dr VENABLE emphasised the dignity and greatness together with the humanity and modesty, of the medical profession. He recommended the two grand words, "I serve" as the motto that might be adopted

Mr MAIN dwelt on the danger of placing money too much to the fore

Dr WU LIEN TEH then read a paper entitled "An Inquiry into Ancient Chinese Ideas of Treating Poisons"

Dr PETER S subject in the evening was 'Health as a Factor in National Strength,' and the points he wished to emphasise were driven home with convincing force by the almost automatic working of many ingenious mechanical demonstrating devices and by maps and charts At 8 o clock there was a lecture by Dr HOUGHTON on Intestinal Parasites and their Ova which was illustrated by lantern slides from microphotographic plates

FRIDAY FEB 11TH

On this the fifth day of the conference there was a further discussion on patent medicines in which Dr YOUNG (Changsha) and Dr ELI DAY (Shanghai) read short papers urging the members of the association to wage war against patent medicines and quackery

Dr STANLEY, who joined in the discussion said that not only must the doctors fight against unnecessary drugging, but they must themselves refuse to prescribe any but drugs of known value

The following ten gentlemen were elected the first honorary members of the association Chou Hsueh hsi the Minister of Finance and Chu Chi chien the Minister of the Interior, both of whom have rendered considerable service in promoting medical science in China, particularly in connexion with the proposed new National Hospital at Peking, Dr Arthur Stanley health officer of the Shanghai municipal council, Mr Dugald Christie Medical College Hospital at Mukden, Mr Duncan Main, Hangchow, Dr Douglas Gray, physician to the British Legation at Peking, Dr H S Houghton Harvard Medical School Shanghai, Dr W W Peter, Public Health Council of the China Medical Missionary Association, Dr E H Hume Hunan Yale Hospital, Changsha, Dr G E Morrison adviser to the late President Yuan Shih kai

A letter was read from the China Medical Missionary Association inviting the National Association to hold a joint conference with it next year at Canton which was agreed to

In the evening Mr ROGERS S GREENE (the China Medical Board of the Rockefeller Foundation) delivered a very interesting lecture entitled 'A Layman s Impressions of Modern Medicine"

SATURDAY, FEB 12TH

On this day the conference was brought to a close by the election of officers for the ensuing year and by the passing of various resolutions

It is interesting to mention that during the conference it was announced that a Chinese National Hospital is to be established in Peking It will be supported partly by Government and partly by private subscriptions from Chinese the organisers refusing foreign help After six years of endeavour by Dr Wu a meeting was held at Peking in December last which was attended by leading officials Mr Tsao Ju lin Vice Minister of the Foreign Office who had worked for the project indefatigably and who presided emphasised the urgent need of having a model hospital in the capital where all classes of Chinese could be treated in an efficient manner The existence of

such an institution would not only serve as an object-lesson to the masses regarding the superiority of modern scientific medicine as compared with ancient empirical medicine, but would help in influencing other large cities in China to follow suit Owing to the strong support of Mr Chou Hsueh hsi, who had already promised $100,000 of the $300,000 required, and of the Minister of the Interior, who had offered a large piece of Government land in the west city for the purpose, they could say at last that their long-deferred scheme of a national hospital would soon be realised Since the conference a contract had been signed for the construction of the hospital, and building is to begin at once The plans have been drawn by Messrs Shattuck and Hussey an American firm of architects The building will be in three storeys with a basement, and there will be accommodation for 50 first and second class patients, and 100 third class patients Unusual interest has been taken in the hospital throughout the country, and subscriptions have been received from the south, Shanghai, Tientsin, and even Hong Kong

The following lectures and demonstrations were also given during the conference Properties and Uses of Radium, by Mr Ernest Heezfeld, Life Insurance Examinations, by Dr T K. M Siao, Preservation of Museum Specimens in Liquid Paraffin, by Dr Liu, and a Hygienic Chair and Table for the Use of School Children, by Dr Yui.

PARIS

(FROM OUR OWN CORRESPONDENT)

Treatment of Gunshot Wounds by Carrel's Method

M Quénu recently made a report to the Surgical Society on 121 gunshot wounds treated by two Army doctors, MM Hornus and Perrin, on Carrel's lines He said that the results obtained bore testimony to the value of the method Neither prompt treatment, nor perfection of appliances, nor quality of nursing was sufficient in itself to explain the results The treatment consisted in laying the wounds freely open, removing foreign bodies and free sequestrums, and irrigating the surface with Dakin's liquid The sterilisation—or at least the chemical lavage—was kept up by constantly renewing the supply of antiseptic fluid to the interior of the wound When, after a period of days or weeks, the wound was found on bacteriological examination to be nearly or quite sterile, secondary suture of the wound was undertaken, or in cases where loss of substance prevented this a progressive approximation of the edges of the wound by means of a kind of corselet provided with hooks and elastic bands MM Hornus and Perrin had treated by this method 81 wounds of soft parts, 21 wounds with bony lesions, 7 with injury of both bone and joints, 6 wounds of joints without fracture, 3 wounds of the chest, and 3 burns M Tuffier communicated to the society at the same session the good results obtained by MM Dehelly and Dumas by following Carrel The 19 cases in which the method had been employed demonstrated the great probability of obtaining healing by first intention after secondary closing of gunshot wounds The disinfection of severely contaminated wounds was shown to be harmless and efficacious After M Pozzi and Dr J L Faure had noted with satisfaction the revulsion of feeling in favour of Carrel's method, MM Routier and Hartmann stated their conviction that if all the details of the application had been known at first as they were now no objection would ever have been raised to the method.

Treatment of Contractures of the Jaws

M L Imbert, head of the medical service especially concerned with the plastic surgery of the face, has with the help of M Réal studied a large number of cases of contracture of the jaws They distinguish three forms—bony, cicatricial, and sclerosing, while four fifths of the cases at present belong to yet another form, hypertonicity of the masseters, not mentioned in the text-books To overcome these contractures it is necessary to combine mecanico-therapeutic movements produced by means of a gag with continuous dilatation of the jaws directed against the tonic resistance of the masseters Surprising results have thus been obtained.

The Removal of Projectiles from Wounds

MM Chauvel and Sauvé have both made recent contributions on this subject M Chauvel has described the successful extraction of 250 projectiles with intermittent control by the X ray screen He does not advise the removal of all foreign bodies, but those should be extracted which keep up suppuration or functional impairment or which from their position may injure a neighbouring nerve or vessel Projectiles encysted in muscle peritoneal cavity, or the interior of any viscus should be removed at the instance of the patient M Chauvel hesitates to touch projectiles situated in the lung near to the hilus, in the liver, or in the mediastinum, when intervention is a grave matter in its immediate or remote results, and also such as are encysted in bone or callus and well tolerated there removal in such cases often leaving troublesome fistulas M Sauvé reported to the Society of Surgery on foreign bodies extracted under three different conditions In the first, he operated after localisation by a radiologist in his absence with fair results 29 successes, 18 failures (35 per cent) In the second, the extraction was undertaken after marking out the position of the projectiles with the radiologist The results were better 124 successes 9 failures (7 per cent) In the third when he operated with intermittent control by the X ray screen, M Sauvé extracted 108 projectiles in 110 cases The two failures could not be put down to the method In each case the foreign body was intrapulmonary One patient had an attack of syncope when the pleura was opened, and the operation was therefore abandoned In the other case a piece of shrapnel was found embedded in the body of a vertebra and it was decided to leave it there The question of intra osseous and periarticular bodies is of special importance It is admitted that those lying within the joints cause serious impairment of function and should be removed Discussion has centred round those situated within the bone In general, projectiles in the diaphysis are well borne if there is no septic reaction This is not the case with those lying in the epiphyses which often give rise to grave impairment of movement M Sauvé counsels their removal

August 8th

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND

THE EXECUTIVE COMMITTEE

A MEETING of the Executive Committee was held on August 9th Since the last committee meeting on June 8th the books of the society have been audited by Messrs Crewdson, Yonatt, and Howard, and the following cash statement issued —

Cash Account from Dec 1st 1915 to June 30th 1916

Receipts	£	s	d	*Payments*	£	s	d
Dec 1st, 1915— To balance as per last account	15,603	12	0	June 30th, 1916— By relief	2 562	11	10
				,, clothes	57	0	10
				,, administration expenses	12	9	3
June 30th, 1916—					2 632	1	11
Donations	305	8	5	Balance at bank £1,945 12 3			
Interest received	528	3	10	Treasury Bills at cost £11,864 10 1	13,810	2	4
Total	£16 442	4	3	Total	£16,442	4	3

The donations lately have been few and trifling apart from a (second) generous gift of £100 from the Society of Apothecaries The total sum now received including donations interest on deposit and interest on Treasury bills, amounts to £19 508 13s 2d £800 a month continues to be sent to Belgium, four such amounts having already gone and receipts received for three The receip fo the fourth sum has not yet arrived—there is always a certain amount of delay in these documents The expenditure in other directions has been low only £44 2s being spent on relief, £20 7s 4d on clothes and £7 6s on the repairing of instruments

VITAL STATISTICS

VITAL STATISTICS OF LONDON DURING JULY, 1916

IN the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs With regard to the notified cases of infectious diseases, it appears that the number of persons reported to be suffering from one or other of the 10 diseases specified in the table was equal to an annual rate of 4·9 per 1000 of the civil population estimated at 4,310,030 persons, In the three preceding months the rates had been 5 3, 4 7, and 4 8 per 1000 respectively The lowest rates during the month were recorded in Kensington Chelsea the City of Westminster, Hampstead, the City of London, Battersea, and Wandsworth, and the highest rates in Shoreditch, Bethnal Green Stepney, Poplar, and Greenwich The prevalence of scarlet fever was slightly more marked than it had been in either of the two preceding months, this disease was proportionally most prevalent last month in Hammersmith, Shoreditch, Bethnal Green, Stepney, and Deptford The Metropolitan Asylums Hospitals contained 1201 scarlet fever patients at the end of last month, against 1603, 1325, and 1256 at the end of the three preceding months, the weekly admissions averaged 163, against 190, 155 and 159 in the three preceding months Diphtheria also was rather more prevalent than it had been in other recent months, the greatest proportional prevalence of this disease was recorded in St Pancras, Stoke Newington, Holborn Finsbury Bethnal Green Stepney and Greenwich The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 1331, 1242 and 1313 at the end of the three preceding months, had declined to 1280 at the end of last month the weekly admissions averaged 153 against 152 in each of the two preceding months The prevalence of enteric fever showed but little variation from that recorded in the previous months, of the 37 cases notified during July, 7 belonged to Wandsworth, and 3 each to Paddington Islington, Stepney, and Bermondsey There were 40 enteric fever patients under treatment in the Metropolitan Asylums Hospitals at the end of last month, against 39 30, and 44 at the end of the three preceding months, the weekly admissions averaged 5, against 7, 5, and 7 in the three preceding months Erysipelas was proportionally most prevalent in St. Marylebone, Hackney Finsbury, Shoreditch, Bethnal Green, Stepney, Poplar, Bermondsey, and Deptford The 13 cases of puerperal fever notified during the month included 2 in St Pancras, 2 in Southwark, and 2 in Camberwell The 23 cases of cerebro-spinal meningitis included 3 in Islington, 3 in Poplar, 3 in Southwark, and 2 each in St Pancras, Bethnal Green, Stepney, Lambeth, and Battersea Of the 18 cases of poliomyelitis 8 belonged to Hackney, 5 to Poplar, and 2 to Islington

The mortality statistics in the table relate to the deaths of persons actually belonging to the several metropolitan boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided During the four weeks ending July 29th the deaths of 3545 London residents were registered, equal to an annual rate of 10 7 per 1000, in the three preceding months the rates were 17 2, 12 9, and 11 5 per 1000 The death rates last month ranged from 7 7 in Wandsworth, 8 6 in Hampstead, 9 2 in Kensington and in Greenwich, 9 3 in Lewisham, and 9 5 in Stoke Newington, to 12 5 in Shoreditch, 12 6 in Bermondsey, 12 7 in Southwark, 13·0 in Poplar, 14 2 in Finsbury, and 14 8 in Holborn The 3545 deaths from all causes included 220 which were referred to the principal infectious diseases, of these, 61 resulted from measles, 14 from scarlet fever, 47 from diphtheria 31 from whooping-cough, 4 from enteric fever, and 63 from diarrhœa and enteritis among children under 2 years of age No death from any of these diseases was recorded last month in the City of London, among the Metropolitan boroughs they caused the lowest death rates in the City of Westminster, Hampstead Wandsworth, and Woolwich, and the highest rates in Holborn, Finsbury, Poplar, Southwark, and Deptford The 61 deaths

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING JULY, 1916

(Specially compiled for THE LANCET)

Cities and Boroughs	Estimated civil population 1915	Notified Cases of Infectious Disease: Small pox	Scarlet fever	Diphtheria *	Typhus fever	Enteric fever	Other continued fevers	Puerperal fever	Erysipelas	Cerebro-spinal meningitis	Poliomyelitis	Total	Annual rate per 1000 persons living	Deaths from Principal Infectious Diseases: Small pox	Measles	Scarlet fever	Diphtheria *	Whooping cough	Enteric fever	Diarrhœa and enteritis (under 2 years)	Total	Annual rate per 1000 persons living	Deaths from all causes	Death rate per 1000 living
LONDON	4,310 030	—	663	630	—	37	2	13	225	23	18	1611	4·9	—	61	14	47	31	4	63	220	0·7	3545	10·7
West Districts																								
Paddington	131,397	—	15	15	—	3	—	1	4	—	—	38	3 8	—	—	—	1	—	—	3	4	0·3	99	9 8
Kensington	159 786	—	15	13	—	2	—	—	5	—	—	35	2·9	—	2	1	1	1	—	1	6	0 5	110	9·2
Hammersmith	116,559	—	27	13	—	—	—	—	6	—	—	46	5 1	—	1	—	2	2	—	—	5	0 5	93	10 8
Fulham	151 161	—	23	18	—	2	—	—	3	—	—	46	4·0	—	3	—	—	3	—	3	9	0·8	122	10·5
Chelsea	58 421	—	6	3	—	—	—	—	1	—	—	10	2·2	—	—	—	1	—	—	1	2	0 4	43	10·7
City of Westminster	135,104	—	15	8	—	1	—	—	4	—	—	28	2 7	—	—	—	1	—	—	1	2	0·2	100	9·6
North Districts																								
St Marylebone	100 260	—	12	12	—	—	—	—	9	—	—	33	4 3	—	—	—	—	1	—	3	4	0 5	79	10·3
Hampstead	81 769	—	3	11	—	1	—	1	4	—	—	20	3·2	—	—	—	1	1	—	—	2	0·3	54	8·6
St. Pancras	200 322	—	20	40	—	—	—	2	7	2	—	71	4 6	—	1	—	—	4	—	1	6	0·4	193	11·9
Islington	316,242	—	46	59	—	3	—	1	10	3	2	124	5 1	—	3	1	6	3	—	7	20	0·8	222	11·6
Stoke Newington	50,527	—	7	11	—	—	—	—	1	—	—	19	4·9	—	—	1	—	1	—	—	2	0·5	57	9·5
Hackney	217 833	—	41	26	—	2	—	—	18	1	8	95	5 7	—	2	1	3	2	—	4	12	0·7	17[illegible]	10·[illegible]
Central District																								
Holborn	40 [illegible]	—	4	9	—	1	—	—	2	—	—	16	5·2	—	—	1	1	—	—	2	4	1 3	45	14 8
Finsbury	76 915	—	11	16	—	—	—	—	6	1	—	34	5·8	—	—	—	3	—	—	3	6	1·0	8[illegible]	1[illegible]·2
City of London	19 [illegible]	—	3	—	—	—	—	—	—	—	—	3	2·0	—	—	—	—	—	—	—	—	—	17	11 4
East District																								
Shoreditch	103,627	—	25	18	—	—	1	1	9	1	—	55	6·9	—	4	1	1	—	—	1	7	0·9	99	12·5
Bethnal Green	120 207	—	3[illegible]	26	—	1	—	—	12	2	1	76	8·2	—	2	1	1	1	—	3	8	0·9	105	11·5
Stepney	278 731	—	72	65	—	3	—	—	25	2	1	171	8 4	—	6	—	3	2	1	5	17	0 8	212	10·4
Poplar	156,2[illegible]7	—	25	30	—	—	—	—	12	3	5	75	6 3	—	5	2	3	3	1	2	16	1 3	156	13·0
South District																								
Southwark	1[illegible]	—	17	24	—	1	—	2	10	3	—	57	4 1	—	12	—	2	1	—	4	19	1·4	175	12·7
Bermondsey	117 1[illegible]	—	21	20	—	3	—	—	9	—	—	53	5·9	—	2	—	2	—	—	—	4	0 [illegible]	113	12·6
Lambeth	2[illegible] 180	—	47	29	—	1	—	—	6	2	1	86	3·9	—	7	2	[illegible]	1	—	3	17	0·8	253	12 1
Battersea	[illegible]	—	16	15	—	—	—	1	9	2	—	43	3 5	—	[illegible]	—	1	1	—	2	8	0·6	120	9·7
Camberwell	[illegible]	—	[illegible]	31	—	7	1	1	[illegible]	1	—	84	3·5	—	—	1	3	1	1	2	8	0 3	185	7·7
Deptford	110 [illegible]	—	23	19	—	—	—	2	16	—	—	93	[illegible]·8	—	1	[illegible]	—	—	—	6	8	0·[illegible]	150	9 7
Greenwich	[illegible]	—	1	37	—	—	—	—	[illegible]	—	—	50	5·9	—	3	1	2	1	—	2	9	1 1	103	12·2
Lewisham	[illegible]	—	[illegible]	18	—	1	—	—	6	—	—	57	7 7	—	2	—	1	2	1	1	7	0·9	68	9·2
Woolwich	1[illegible] 5	—	13	16	—	1	—	1	3	—	—	[illegible]	[illegible]·0	—	1	—	3	—	—	2	6	0·5	117	9·3
Port of London	—	—	—	—	—	4	—	—	—	—	—	[illegible]	3 8	—	—	—	1	—	—	1	2	0 2	106	10·6

* Including membranous croup.

from measles were 36 fewer than the corrected average number in the corresponding period of the five preceding years, this disease was proportionally most fatal in Shoreditch, Stepney, Poplar, Southwark, Lambeth Battersea, and Deptford The 14 fatal cases of scarlet fever were 2 below the corrected average number, and included 2 in Poplar and 2 in Lambeth The 47 deaths from diphtheria were 11 above the corrected average, the greatest proportional mortality from this disease occurred in Islington, Finsbury, Poplar, Deptford, and Lewisham The 31 fatal cases of whooping-cough were 25 below the corrected average, and included 4 in St Pancras, 3 in Islington, 3 in Poplar, and 2 each in Hammersmith, Hackney, Stepney, and Greenwich The 4 deaths from enteric fever were 6 below the average, and belonged respectively to Stepney, Poplar, Wandsworth, and Greenwich The 63 deaths from diarrhœa and enteritis among children under 2 years of age were 93 below the corrected average number, this disease was proportionally most fatal in Paddington, St Marylebone, Holborn, Finsbury, Bethnal Green, Southwark, and Camberwell In conclusion it may be stated that the aggregate mortality in London last month from these principal infectious diseases was 41 per cent below the average

HEALTH OF ENGLISH TOWNS

In the 96 English and Welsh towns with populations exceeding 50,000 persons at the last Census, 7543 births and 3506 deaths were registered during the week ended Saturday, August 12th The annual rate of mortality in these towns which had been 11 1, 10 5, and 10 8 per 1000 in the three preceding weeks, fell in the week under notice to 10 6 per 1000 of their aggregate civil population, estimated at 17,312,295 persons for the year 1915 During the first six weeks of the current quarter the mean annual death rate in these towns averaged 10 8 per 1000, and coincided with that recorded in London during the same period Among the several towns the death rate last week ranged from 4·0 in Swindon, 4 1 in Aberdare, 4 5 in Ilford, 5 6 in Burnley, and 5 8 in Gillingham and in Bath, to 14 5 in Great Yarmouth, 14 6 in Bootle, 15 2 in Middlesbrough, 15 4 in Cambridge, and 16 4 in Huddersfield and in Hull

The 3506 deaths from all causes were 79 fewer than the number in the previous week, and included 266 which were referred to the principal epidemic diseases, against 221 and 228 in the two preceding weeks Of these 266 deaths, 127 resulted from infantile diarrhœal diseases, 54 from measles, 38 from diphtheria 34 from whooping cough, 9 from scarlet fever, and 4 from enteric fever but not one from small pox. The annual death rate from these diseases were equal to 0 8, against 0 7 per 1000 in each of the two preceding weeks The deaths of infants (under 2 years) from diarrhœa and enteritis, which had been 46, 72, and 82 in the three preceding weeks, further rose to 127, and included 31 in London, 10 in Liverpool, 6 each in Birmingham and Leeds, and 5 each in West Ham, Nottingham, and Manchester The deaths referred to measles, which had been 59, 64, and 53 in the three preceding weeks, were 54, of which 15 were registered in London, 6 in Sheffield, 5 in Liverpool, and 4 in Manchester The fatal cases of diphtheria, which had been 43, 35, and 40 in the three preceding weeks, fell to 38, and included 8 in London and 3 in Manchester The deaths from whooping-cough, which had been 42, 36, and 25 in the three preceding weeks, rose to 34, of which 7 belonged to London The deaths attributed to scarlet fever, which had been 17, 9, and 14 in the three preceding weeks, fell to 9 and included 2 in Liverpool The fatal cases of enteric fever, which had been 5, 5, and 14 in the three preceding weeks, fell to 4, of which 2 were registered in London

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and in the London Fever Hospital, which had been 1216, 1221, and 1173 at the end of the three preceding weeks further fell to 1107 on Saturday last, 136 new cases were admitted during the week against 172, 171, and 121 in the three preceding weeks These hospitals also contained on Saturday last 1269 cases of diphtheria, 178 of measles, 133 of whooping-cough and 35 of enteric fever, but not one of small pox. The 878 deaths from all causes in London were 57 below the number registered in the previous week, and corresponded to an annual death rate of 10 6 per 1000 The deaths referred to diseases of the respiratory system, which had been 99, 90, and 99 in the three preceding weeks, fell to 88 in the week under notice

Of the 3506 deaths from all causes in the 96 towns, 197 resulted from violence 351 were the subject of coroners' inquests, and 1080 occurred in public institutions The causes of 22, or 0 6 per cent of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest All the causes of death were duly certified in London and in its 14 suburban districts in Sheffield, Leeds, Bristol, Bradford and in 64 other smaller towns Of the 22 uncertified causes 6 were registered in Liverpool, 3 in Birmingham, and 2 each in Manchester and Sunderland

HEALTH OF SCOTCH TOWNS

In the 16 largest Scotch towns with an aggregate population estimated at 2,372,000 persons at the middle of this year 1052 births and 554 deaths were registered during the week ended Saturday, August 12th The annual rate of mortality in these towns, which had been 11 2, 12 5, and 11 2 per 1000 in the three preceding weeks, rose to 12 2 per 1000 in the week under notice During the first six weeks of the current quarter the mean annual death rate in these towns averaged 12·0, or 1 2 per 1000 in excess of that recorded in the large English towns Among the several towns the death rate last week ranged from 6 1 in Falkirk, 8·6 in Perth, and 9 8 in Kilmarnock, to 14 9 in Motherwell, 16·6 in Kirkcaldy, and 16 8 in Greenock

The 554 deaths from all causes were 46 in excess of the number in the previous week, and included 46 which were referred to the principal epidemic diseases against 37 and 36 in the two preceding weeks Of these 46 deaths, 19 resulted from infantile diarrhœal diseases, 11 from whooping-cough 8 from measles, 5 from diphtheria and 3 from scarlet fever, but not one from small pox or from enteric fever The annual death rate from these diseases was equal to 1·0, against 0 8 per 1000 in the large English towns The deaths of infants (under 2 years) from diarrhœa and enteritis, which had been 7, 15, and 15 in the three preceding weeks further rose to 19, and comprised 12 in Glasgow, 2 each in Edinburgh, Dundee, and Aberdeen, and 1 in Clydebank The deaths referred to whooping-cough, which had been 3, 4, and 3 in the three preceding weeks, rose to 11, of which 9 occurred in Glasgow The fatal cases of measles which had been 17, 7, and 8 in the three preceding weeks, were again 8 last week, and included 4 in Leith The 5 deaths attributed to diphtheria, of which 3 were registered in Glasgow, were equal to the average in the earlier weeks of the quarter The fatal cases of scarlet fever occurred in Glasgow, Motherwell, and Clydebank

The deaths referred to diseases of the respiratory system, which had been 62, 40, and 58 in the three preceding weeks rose to 61 last week, and were 5 above the number registered in the corresponding week of last year The deaths from violence numbered 27, against 32 and 33 in the two preceding weeks

HEALTH OF IRISH TOWNS

In the registration area of Dublin 181 births and 126 deaths were registered during the week ended Saturday, August 12th The annual rate of mortality, which had declined from 18 8 to 14 1 per 1000 in the four preceding weeks rose to 16·5 in the week under notice, against 10 6 and 11 9 per 1000 in London and Glasgow respectively

Of the 126 deaths at all ages 20 related to infants under 1 year and 34 to persons aged 65 years and upwards Eleven deaths of infants (under 2 years) were referred to diarrhœal diseases, and 1 fatal case each of enteric fever, scarlet fever and whooping cough was registered Six deaths were the subject of coroners' inquests and 67 or 45 per cent, of the total deaths occurred in public institutions

During the same period 166 births and 87 deaths were registered in the city of Belfast The deaths corresponded to an annual rate of 11 6, or 1 1 per 1000 less than in the previous week, and included 11 of infants under 1 year, and 19 of persons aged 65 years and upwards Three deaths were referred to infantile diarrhœa and 1 each to measles and scarlet fever The cause of 1 death was uncertified and 5 others were the subject of coroners' inquests while 26 deaths occurred in public institutions

---

THE APPROVED SOCIETIES IN IRELAND AND THE CERTIFICATION SCHEME —There seems to be some restiveness among the Approved Societies in Ireland with regard to the scheme for certification of insured persons recently arranged between the Insurance Commissioners and the medical profession At a meeting of the Association of Approved Societies held recently in Dublin resolutions were passed demanding the immediate appointment of referees and asking for a grant to the Approved Societies as pay for additional sick visitors Again at the Trade Union Congress held last week in Sligo a demand was made for the abolition of the present system of certification As this system has only been in force for a few months it is much too soon to be able to judge finally of its qualities and whatever faults it may have, it is certainly an improvement on the haphazard system previously in existence The societies feel no doubt that they have lost the patronage direct or indirect, which they previously possessed in regard to the appointment of certifiers, and they wish again to get the certifiers into their control As a matter of fact the sickness benefits paid in the early part of this year under the new system caused a considerable easing to the societies

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Richard C P Whitcombe to be temporary Surgeon

ROYAL ARMY MEDICAL CORPS

Temporary Captain E W Skinner to be temporary Major

Temporary Captain L C Somervell relinquishes his commission on account of ill health

Temporary Captain J C McKerrow relinquishes his commission

Temporary Lieutenant W G Southey to be temporary Captain

The undermentioned to be temporary Captains A H H Sinclair, G D Mathewson, and J S Fowler

M Gamble to be temporary Honorary Captain whilst employed with the Withington War Hospital

The undermentioned to be temporary Lieutenants Lieutenant R H Astbury, from Royal Warwickshire Regiment, T F S B Hanbury, J W Cowie J W Otto van Millingen, F H Storey, A Wilkin, G J R Carruthers G J M Fraser, K D Melville, F P Wigfield T Peebles, E Burstal, T W E Ross J V Rees, R McL Wishart, W J Crow, K B Allan, T N Darling J G Jack, F Stevenson H M Leathes, T McL Galloway, W H Booth, W S McLaren E R Eatock J McN Murray, W H. Peacock J F Gill Temporary Honorary Lieutenant J C N Harris, R W Ironside, P R Lowe, H Blakemore J McMurray E C White N E Kendall H C Wilson, R H Rattray, R Lee, E R Bastard K. G Haig C S O'Neill, H C Harper, J W B Hanington J R Micallef, A B Howitt, H M Churchill, and J C Ellis

Temporary Lieutenants F C Drew, J M Verster, and C D Pile relinquish their commissions

The undermentioned, having ceased to be employed with the Australian Voluntary Hospital, relinquish their temporary honorary commissions Major E T Thring, Captain W R Reynell Captain G A. Paul, and Captain L S Kidd

Temporary Lieutenants to be temporary Captains whilst serving with the forces in West Africa J Lindsay, A. J M Crichton B J Courtney, and R F Williams

Canadian Army Medical Corps Lieutenant-Colonel A. Mignault to be temporary Colonel To be temporary Captains H S Smith and Lieutenant W A Smith To be temporary Lieutenant Lieutenant R H Stoddard

INDIAN MEDICAL SERVICE

The King has approved the promotion of the following officers —Lieutenant Colonel to be Colonel P Carr White Lieutenants to be Captains R R M Porter R Sweet, E Calvert J R D Webb F Phelan A. C Macrae, Nawin Chand kapur, A. H C Hill J F Holmes, Narayan Krishna Bal, Haji Sulaiman Gulam hossein Haji Temporary Lieutenants to be temporary Captains P S Blaker and Shripat Govind Ranaday

SPECIAL RESERVE OF OFFICERS

Royal Army Medical Corps

The undermentioned to be Lieutenants D Loughlin, W J Vance G E Kidman from University of London Officers Training Corps, Cadet S J Henderson from Glasgow University Training Corps and R B Hick

TERRITORIAL FORCE

Royal Army Medical Corps

London Casualty Clearing Station Lieutenant F A Dick to be Captain

Southern General Hospital Lieutenant Colonel R S Smith resigns his commission

Highland Mounted Brigade Field Ambulance Lieutenant (temporary Captain) L M V Mitchell to be Captain

Western General Hospital Captain W V Hoolon from Territorial Force Reserve to be Captain

Northern General Hospital Captain T C Clare is seconded for duty with a General Hospital

Scottish General Hospital Major B Riddell to be temporary Lieutenant Colonel whilst acting as Administrator of a General Hospital

London Sanitary Company Lieutenants K B Williamson and J Tate to be Captains

Lowland Casualty Clearing Station To be Lieutenants D Campbell and F McM Dunlop

Attached to Units other than Medical Units—Surgeon Major S I Barber from the York and Lancaster Regiment to be Major Surgeon Captain J M Benson from West Riding Divisional Engineers Captain T J Costello from Wessex Field Ambulance and Lieutenants H G Ludolf and J Halwall Cormac to be Captains

Correspondence.

"Audi alteram partem"

NOTES ON THREE CASES OF CHLORINE GAS POISONING

To the Editor of THE LANCET

SIR,—At a time when massive poisoning by chlorine and other gases is in vogue the following notes on poisoning by small but repeated doses may be of general interest In this instance the sanatorium is making some fairly extensive use of the nascent iodine treatment, so called, as it is supposed that by superimposing chlorine, in the form of freshly prepared chlorine water administered by the mouth, on potassium iodide given some two to five hours previously, nascent iodine is produced in the region of tuberculous tissue The preparation of the chlorine is an objectionable matter, and we have devised various methods of so doing but in the best of these the escape of some free chlorine and its consequent inhalation is unavoidable I quote three cases

CASE 1.—The sister in charge prepared the gas regularly at the commencement of the year It was done in a badly ventilated room, in which she spent some large proportion of her time She complained of severe rheumatic pains, which did not yield to salicylates Later she developed a severe bronchitis, which confined her to her room for some three weeks On recovery all the symptoms disappeared She was allowed to make no more of the drug She has since been quite well

CASE 2.—A medical student, a patient who was taking the preparation personally, volunteered to act as its dispenser It was now made in an excellently well ventilated room, but he soon gave up the manufacture as it made him "cough so much at night"

CASE 3.—I now took on the whole of the manufacture I may say that I have a slightly active tuberculous lesion I used the well ventilated room and improved the technique, so that little or no gas escaped except when the apparatus was cleaned I found the same effects as Case 2—a very irritable cough originating in the upper air passages, which gets worse at night, especially on lying down There is a good deal of frothy mucus excreted but it is difficult to evacuate Also a tightness across the front and upper part of the chest and shortness of breath (inspiratory) Later the rheumatoid pains occurred, and they are really severe, they make their appearance in the lumbar region and the big joints The condition improved with a few days in bed, and shortly afterwards I took a fortnight's holiday, when after a few days they completely disappeared, and I had the first good night's sleep I had had for some weeks On return I at once began to make the gas again, and within a few days I have noticed the cough and pains begin to return

One evening a bottle containing some weak gas was laid on the ground near a sing It was most interesting to watch the extraordinary output of mucus by the creature, which in a few minutes was quite enveloped in its own secretions

I would warn others of the insidious nature of the poison and advise that a proper gas mask be worn if the stuff must be employed as well as taking every precaution in the way of ventilation and the use of a proper fume cupboard

I am Sir yours faithfully

EDWARD BIGG, B C Cantab, M R C S, &c

Nordrach upon Mendip Bristol August 12th 1916

ATMOSPHERIC HEAT AND HUMIDITY IN RELATION TO PYREXIA

To the Editor of THE LANCET

SIR.—The leading article on Heat-Stroke in THE LANCET of July 29 h draws attention once again to the effect of a hot damp, and stagnant atmosphere in raising body temperature and appropriately recalls Professor Haldane's statement founded on experiment that when the wet bulb temperature of the air exceeds 31 6° C (89 0° F) if the air is still the body temperature begins to rise and that even when the air is moving the body temperature begins to rise when the temperature of air approaches that of the body This seems to be now generally recognised but that which is not so generally recognised is that the body temperature

begins to rise when the wet bulb temperature of the air is very much lower than 31 6° C (89 0° F), even when the air is moving slightly, if there is at the same time a certain degree of atmospheric humidity

Below I give a series of 60 different combinations of atmospheric heat, humidity, and stagnancy under which body temperature begins to rise, and the degree to which the body temperature was so raised in some in four minutes and in all in less than four hours

	Atmospheric Conditions which Raised Body Temperature in the Cotton Sheds of Lancashire and the Linen Sheds of Ireland				*Degree to which Body Temperature was Raised, and Pulse and Respiration Quickened by Exposure in the Cotton and Linen Sheds*		
No	Temp of air (F) Dry	Temp of air (F) Wet	Drying power of air per 10 c.ft Grains	Length of exposure Min	Body temp in mouth (F)	Pulse	Respirations
1	90 0	75 0	82·0	90	98 8	94	24
2	89·0	79·0	60·0	105	100·0	108	24
3	89 0	76·0	73 0	75	100·0	108	16
4	88 0	80 0	49·0	75	100·0	108	16
5	88 0	77 5	61 0	165	100 2	104	20
6	87 2	76 0	63·0	165	100 4	100	26
7	87 0	79·0	48 0	75	100 4	108	24
8	86 5	79 5	42 5	135	99 2	92	24
9	86 0	77 5	49 0	75	99 2	80	20
10	85 5	78 0	44 0	90	100 1	82	22
11	85 0	77 0	45·0	232	100·4	120	24
12	84 5	77 0	42 0	210	100 6	96	26
13	84 5	77 5	41·0	210	100 3	130	25
14	84 0	80 0	24·0	60	101·0	114	26
15	84 0	77 0	39 0	195	100 3	84	26
16	83 5	77 5	34 5	225	100 1	100	20
17	83 5	74 0	50 0	235	99 8	116	20
18	83·0	80·0	18 0	120	100 4	128	24
19	83·0	78 0	29·0	210	100·0	100	21
20	83 0	74 0	47 0	215	99 0	104	21
21	82·0	79 0	18 0	160	100 8	126	22
22	82 0	77 0	28 0	190	100·2	80	24
23	82 0	78·0	23 0	30	100 2	80	16
24	82·0	80 0	12 0	230	100·0	107	23
25	81 5	75 5	32 5	45	100 2	112	31
26	81 5	74·0	39 5	176	99 8	86	20
27	81 0	77 0	22 0	155	100 4	120	24
28	81 0	76·0	27·0	190	100·0	140	26
29	81·0	75 0	32·0	5	100·0	112	31
30	81 0	74·0	37 0	185	100·0	82	21
31	81·0	73·0	41 0	160	99·4	84	20
32	80·5	73·0	38 5	215	99 6	92	20
33	80 0	71 0	44·0	120	100·0	90	24
34	79 5	74 5	26 5	223	100 2	95	18
35	79 0	73 5	28 0	39	100 3	110	20
36	79·0	72 0	38·0	185	100 0	90	23
37	78 5	73 5	25 0	175	99 6	116	22
38	78·0	73·0	25 0	120	100 2	108	24
39	78 0	73 5	23·0	4	100·0	100	30
41	77 0	71 0	29 0	120	100 2	88	22
42	77·0	70·0	33 0	120	100 0	100	26
43	76·0	70 0	29·0	120	100 2	88	20
44	76·0	72·0	20 0	120	99 4	88	20
45	75 5	70 5	24 5	225	99 6	132	22
46	75·0	69 5	26 6	34	100 2	110	18
47	75 0	68 0	32 0	205	100 2	88	25
48	74 0	70·0	19 0	180	100 0	98	22
49	73 5	68·0	24 5	45	100 0	90	22
50	73 0	70·0	14 0	15	100·0	80	15
51	72·0	67 0	18·0	10	100·0	72	14
52	71·0	69 5	7 5	30	99 5	—	—
*53	70 5	69·0	7 5	58	99 7	—	—
*54	70·0	66·0	17·0	60	100·0	—	—
55	69 0	65·0	17 0	40	100·0	100	26
*56	68 0	66·5	6 5	24	99 4	—	—
*57	67 5	65 5	9·0	20	99 5	—	—
*58	67·0	63·0	17·0	20	99 6	—	—
*59	66 5	64·0	10 5	20	99 4	—	—
*60	66 0	63·0	12·0	23	99 4	—	—
*61	65 5	63·0	10·0	20	99 4	—	—

The rate of movement of the air could not be calculated as no movement was perceptible

The above records of atmospheric conditions which raise the body temperature of some of those immersed therein from normal to the degree noted are, with the exception of those marked (*), taken from the appendices to the Reports of the Departmental Committee on Humidity and Ventilation in the Cotton Weaving Sheds of Lancashire and in the Linen Weaving Sheds in Ireland I have however, given the drying power of the air, calculated from the dry and wet bulb temperatures in the sheds, instead of the relative humidity as more clearly showing the degree of impediment to loss of heat from the body by evaporation, presented by the atmosphere in the sheds The records marked (*) are from observations made by me, No 54 in the orchestral stalls of a theatre at a matinee performance and the others in glass houses artificially heated and humidified for the cultivation of orchids, crotons, grapes, tomatoes, &c These I have added to carry the series to as low a degree of atmospheric temperature as possible

It can be seen from this series of observations that the body temperature of some will begin to rise when the wet bulb temperature of the air is as low as 18 3° C (65 0° F), if no movement of the air is perceptible and the dry bulb temperature of the air is not above 19 4° C (69 0° F). If my own observations are correct the body temperature begins to rise when the wet bulb temperature of the air is only 17 2° C (63 0° F), if no movement of the air is perceptible and at the same time the dry bulb temperature of the air is not above 18 8° C (66 0° F) In addition to rise of body temperature and acceleration of the pulse and respiration, exposure to the warm or hot, damp, and stagnant atmosphere in the weaving sheds, also caused malaise, muscular pains drowsiness, dizziness, headache, chilliness and shivering Repeated exposure to such atmospheric conditions gives rise to anæmia and more serious effects

The value of the foregoing table of combinations of atmospheric heat, humidity, and stagnancy, which raise body temperature, is that it supplies a standard by comparison with which we may see whether the natural meteorological conditions at any particular place are such as will cause pyrexia or not It may thus help, perhaps to throw some light on the causation of certain pyrexias of short duration and of (at present) uncertain origin such as "trench" fever By such comparison I have elsewhere[1] given my reasons for believing that in the season when malarial fevers are prevalent, at Calcutta, Madras, and Bombay in India, at Puttalam and Kurunegala in Ceylon, at Singapore in the Straits Settlements, and at Ancon Colon and Culebra in the Panama Canal Zone, the atmospheric conditions are such as will cause paroxysms of intermittent pyrexia, each paroxysm from 4 to 14 hours or even longer in duration Indeed, the term Mal'Aria would be a most suitable one to describe briefly atmospheric conditions which produce pyrexia in the cotton sheds or elsewhere And doubtless, this was how the term came to be applied to the disease malaria as well as to the atmospheric conditions which were originally believed to cause this disease

I am, Sir, yours faithfully,

MATHEW D O CONNELL, M D,

Harrogate August 4th 1916 Colonel R.P late A.M S

TREATMENT OF THE MAIN NERVES IN AMPUTATIONS

To the Editor of THE LANCET

SIR —I wish briefly to draw attention to a subject which I think has not received the care its importance demands It does not much prolong the time taken in an amputation, if the main nerves are drawn down out of their fascial envelopes and an inch or more of the nerve trunks cut away with scissors The leaving of the main nerves in a stump to be entangled and subsequently pressed upon by cicatricial tissue, is responsible for painful "neuralgic" stumps These are at once a source of intolerable suffering to the patients and of despair to those who have to fit them with artificial limbs Furthermore the primary dressings, if there are no main nerves left free in the stump are rendered far less painful This is a matter of no small moment in the many amputations now done through septic tissues where the flaps heal badly where subsequent scar tissue is very abundant and contractile, and where 'packing" of the stump with salines or other applications has often to be resorted to In all the amputations of the upper extremity and also of the leg this drawing out and "cutting short of the main nerves is of importance In the thigh the sciatic nerve retracts markedly as a rule, but if long and prominent it should be similarly treated I do not know if this procedure is advocated in

[1] Journal of Tropical Medicine 1911 to 1916

modern text-books I have employed it for years with advantages hardly to be exaggerated. I venture now to present it to the consideration of those employed in the surgery of the present war

I am Sir, yours faithfully,

A. MARMADUKE SHEILD,

August 1 h 1916 Consulting Surgeon to St George s Hospital

THE PSYCHO-PATHOLOGY OF WAR NEUROSES

To the Editor of THE LANCET

SIR,—Captain M D Eder s article on this subject was very interesting to read. But are his conclusions sound? All science is based on accurate observation. Where I can test Captain Eder s statements it seems very probable that he has made an inaccurate observation. In Case 7 there is a young man whose bent is towards ships and ship-building He has obviously been often on the bridge of a ship Yet Captain Eder reports him as saying "I rang down full speed ahead." Now that is what Captain Eder probably thinks is said by sailors but it is not "*full steam ahead*" is what is seen on every ship s telegraph. So it seems very likely to me that Captain Eder has allowed his preconceptions to distort the accuracy of his observations And if it is so in this case it is probably so in others

I am, Sir, yours faithfully,

G BURTON BROWN M D

Harston Sidmouth August 1 th 1916.

CHINESE TOE-ROT AND FOOT-TETTER

To the Editor of THE LANCET

SIR,—In your issue of June 10th (p 1200) occurs a short note on "Chinese Toe Rot" A condition similar to that described is fairly common in Nigeria and presumably in most tropical countries, but we do not consider that it need be as intractable as indicated in your note. Treatment with various antiseptics and dusting powders as a rule alleviates but does not cure

The method we advise based, clinically only on the fact that the organisms appear to flourish in an acid medium is usually much more rapidly effective, and consists merely in the repeated application of an antiseptic ointment rendered alkaline in some convenient way e.g by adding 5 gr of sod. bicarb to an ounce of ung hyd nit dil. We have seen a case that had withstood three years treatment with sulphur or iodine and various antiseptic dusting powders yield to the treatment indicated within three or four weeks

We are, Sir yours faithfully

J McF POLLARD M D Lond
West African Medical Staff

J E L. JOHNSTON M B B S Lond.,
D T M and H Camb
West African Medical Staff

Zungeru Northern Nigeria, July 1 th 1916

ALIMENTARY REST IN DIABETES

To the Editor of THE LANCET

SIR —Dr O Leyton s letter in THE LANCET of July 8th I really think is somewhat captious The article criticised stated that Guelpa s theory was not generally accepted and described Allen s method as a decided advance, which is hardly doing Allen very scant justice I was present at the debate It was generally agreed that mild cases in la er life usually respond rapidly to some such method of fasting In the more severe cases the urine may be freed from sugar temporarily but sometimes the general well being of the patient suffers though even in these severer cases modified fasting will probably be very useful So far I am in accord with your editorial views But if Dr Leyton will turn to the official record of that debate he will find that of the four speakers who followed him three made statements to that effect Dr Spriggs said I am inclined to think that in treating a chronic disease it is of importance to maintain the patient in such a state of nutrition that he can work and can enjoy himself Dr Ruffel said of his cases the three were severe in whom considerable difficulty was experienced in preventing the recurrence of sugar when food was given so much so that it appeared a better plan to regulate the acetonuria by periodical starvation and not to aim at complete elimination of glycosuria." Dr Cammidge said "The dangerous increase in the acidosis, &c., observed by Stillman in some 10 per cent of his cases while undergoing Allen s treatment points to there being limitations to the usefulness of the method"—I am, Sir, yours faithfully,

August 11th 1916 M.D

THE EFFECTS OF TRI-NITRO-TOLUENE ON WOMEN WORKERS

To the Editor of THE LANCET

SIR,—The observations by Dr Agnes Livingstone-Learmonth and Dr Barbara M. Cunningham in your issue of August 12th are interesting as a contribution to the study of T N T poisoning and prompt these questions 1 What methods were adopted for selecting the workers? 2 How many applicants were rejected? 3 What are the homes like? 4 How many are unable to take milk eggs, or cheese, the great lime-bearing foods? 5 Are many of them fond of vinegar, lemons, and acid fruits? 6 What is the state of the teeth?

The writers emphasise the value of cleanliness with what seems but little regard for circumstances How can working women afford to change constantly their underclothing? Among a class where, when teeth are bad the cavities are stopped with bread, it is not surprising that underclothes should not be changed It is here that social workers find an *impasse*, which can be surmounted only when priests and parsons realise that their responsibility begins in this life, or to put it more plainly until they take a more active share in the social work of their people, an example that is set them by the Rabbi of the Hebrew community

I am, Sir, yours faithfully

Swansea, August 14th, 1916 G ARBOUR STEPHENS

Obituary.

MORTON ALFRED SMALE M.R C S ENG L.S A., L D S,

CONSULTING SURGEON DENTIST ST MARY'S HOSPITAL, ETC

THE death of Mr Morton Smale in the midst of his activities at the age of 69 is a serious loss to the dental branch of the profession of surgery During the 40 years that have elapsed since he first qualified there is hardly any post of responsibility in the world of dentistry which he has not occupied We say hardly any because he never was President of the Odontological Society *neither* was he President of the British Dental Association, but it is understood that he refused both these honours

Morton Smale received his medical education at St Mary s Hospital where he afterwards became dental surgeon having previously served in that capacity at the West London Hospital He was medical tutor at the Dental Hospital of London and in 1883 succeeded Mr Francis Ken Underwood as dean of that institution a post which he occupied with conspicuous success for 20 years During that period he effected great changes in the hospital He was the guiding spirit in the removal of the hospital from its original site to the present building, and bore no small part in the task of raising the necessary funds In this difficult enterprise he was greatly assisted by his brother Mr William Smale and very loyally supported both in sharing the work and subscribing the money by the then staff During his deanship the Dental Hospital of London received the title of Royal Another great work costing many months to arrange and many years constant daily supervision was the formation in the face of much opposition of the appliance department of the hospital. This scheme was planned in 1889 by Mr Morton Smale, Mr David Hepburn and Mr A. S Underwood It was the first attempt to deal with the problem of supplying artificial teeth to suitable poor cases, a small fixed sum being demanded towards current expenses This initiative was subsequently followed by most dental hospitals in the kingdom

Mr Smale s connexion with the Royal College of Surgeons of England was long and intimate In 1886 he induced the Council of the College to allow a part or the whole of the three years course of instruction in mechanical dentistry to be taken before registration In 1889 he was appointed to

the Board of Examiners in Dental Surgery of the College, and remained on the Board until 1901, having been re-elected for a third period of two years to assist in the rearranging of the examination In 1896 he was appointed one of the original members of the committee to decide the award of the John Tomes Prize for Scientific Research in Dental Science In 1899 he visited the United States of America in company with Mr E Lloyd Williams, with the object of carefully investigating the methods of dental education and examination in that country, and in 1900 he presented an exhaustive report upon the subject to the Council of the College which was very useful to that body

In 1913, when the International Medical Congress met in London, Mr Smale was President of the Stomatological Section, and the success which attended that portion of the great gathering was largely due to his efforts, ably seconded by the honorary secretary, Mr J F Colyer The scientific work credited to the Congress has left a lasting mark on dental science Soon after the outbreak of the war Mr Smale was asked by the late Mr Edmund Owen and Sir Frederick Treves to organize the dental department of the new hospital for wounded then being fitted out by the St John Ambulance and the Red Cross Society This he did, and remained one of the honorary dental surgeons until his death

Morton Smale was always convinced of the importance of regarding dental surgery as a branch of general surgery, and lost no opportunity of advocating that view His death will be widely felt in the profession generally, many of whom are his old pupils and colleagues

ALBERT FRÄNKEL

Albert Fränkel, the discoverer of the pneumococcus and its causal relation to pneumonia, died in Berlin on July 6th at the age of 68 years A sympathetic account of his life appears in the *Deutsche Medizinische Wochenschrift* of July 25th from the pen of his colleague, F Kraus Fränkel was one of the earliest pupils of von Leyden and followed worthily in the footsteps of his distinguished uncle, L Traube For many years he was director of the medical section of the Am Urban Hospital in Berlin, but although for long one of the most prominent clinicians in Berlin and with a large and widespread consulting practice, he never obtained a teaching appointment at the University, an omission which was always a keen source of regret to him Apart from his fame in association with the pneumococcus, Fränkel will be remembered for his contributions to medical literature on the subject of respiratory diseases He was one of the founders of the Association of Physicians (Verein für innere Medizin), of which he was for long the tireless President His death removes one of the few remaining names in German medicine which are well known in this country

JOHN EUSTACE WEBB, M B, C M ABERD,

SURGEON ROYAL NAVY (RETIRED)

Dr J E Webb, who died suddenly at his residence in Looe, Cornwall, on August 6th, was a son of Dr F C Webb the editor of the *Medical Times and Gazette* He graduated M B, C M of Aberdeen University in 1884, and shortly afterwards entered the Royal Navy as assistant surgeon He was at one time on the medical staff of the Royal Naval Hospital, Haslar On his retirement he practised at Looe, where he held several appointments, including that of Admiralty surgeon and agent and port medical officer of health Dr Webb will be greatly missed in Looe, where he was held in the highest esteem, and much sympathy is felt there for his widow and two children

A CONVICTION UNDER THE DENTISTS ACT —At the Marylebone police court on July 28th, Henry John Goldberg was charged with unlawfully taking and using the description of dentist Mr R W Turner, who appeared for the British Dental Association, stated that two summonses had been issued against the defendant, one for implying that he was "registered under the Act," and the other for implying that he was "specially qualified" in advertisements which had appeared in various weekly periodicals He called attention to a previous conviction on June 22nd 1915 (see THE LANCET, July 3rd, 1915 p 35) for using the words "Dental Practitioner," when the defendant was fined £20 and 5 guineas costs Mr Snell said that the defendant pleaded guilty to the charge The magistrate imposed the maximum penalty of £20 and 10 guineas costs

The War.

THE CASUALTY LIST

THE following names of medical officers appear among the casualties announced since our last issue —

Killed

Captain H R Knowles, R A M C attached to the Royal Lancashire Regiment, was educated at Leeds University graduating M B, Ch B in 1914 He joined the R A M C shortly afterwards, and was awarded the Military Cross in April last

Captain A P Low, R A M C, attached to the Seaforth Highlanders, was educated at Edinburgh University and qualified in 1896 After holding appointments at the Dundee Royal Infirmary and at Craiglockhart Poorhouse he took up practice in Dundee, and joined the R A M C in 1912

Captain D H D Wooderson, R A M C, attached to the Liverpool Regiment, was a student at St Bartholomew's Hospital, London, and joined the R A M C shortly after qualifying in 1914

Wounded

Lieutenant B Graves, R A M C, attached to the North Staffordshire Regiment

Captain C H Wood, New Zealand Medical Corps

Lieutenant R Felton, R A M C, attached to the Middlesex Regiment

Captain G J Fraser, R A M C attached to the Northumberland Fusiliers

Lieutenant F L Keith, R A M C, attached to the Northumberland Fusiliers

Missing

Surgeon Probationer G S Freeman, H M S *Lassoo*, R N V R

Prisoner at Kut el Amara

Major E A Walker, Indian Medical Service

Previously reported Believed taken Prisoners at Kut el Amara now reported Prisoners

Major E F E Baines Indian Medical Service
Captain S G S Haughton, Indian Medical Service
Lieutenant R V Martin, Indian Medical Service
Captain A T J McCreery, R.A M C

Believed taken Prisoners at Kut-al Amara

Captain P B Bharucha, Indian Medical Service
Lieutenant N S Jatar, Indian Medical Service

DEATHS AMONG THE SONS OF MEDICAL MEN

The following sons of medical men must be added to our lists of those who have fallen during the war —

Lieutenant R W Vaughan Roberts Liverpool Regiment elder son of Dr W Vaughan Roberts, J P, of Blaenau Festiniog, North Wales

Second Lieutenant P M Alexander, Gordon Highlanders eldest son of Dr S P Alexander, of Southsea

Lieutenant Q M V Bidie, Royal Flying Corps and Royal Scots only son of Lieutenant Colonel G Bidie, I M S

Captain J G Hurd Wood Infantry Brigade, son of the late Dr J Hurd Wood, of Whitmead Hill Farnham

Captain H R Knowles, R A M C, attached to the Lancaster Regiment, eldest son of Dr H Knowles of Hersham late of Barnsley

Captain P Wood, 89th Punjabis, youngest son of the late Brigade Surgeon J Wood, of Lichfield

Captain G Blackader, Canadian Infantry, son of Dr A D Blackader, of Montreal

Private C C Keelan H A C youngest son of the late D N W Keelan, of Dominica West Indies

Second Lieutenant W C Bower King's Own Royal Lancashire Regiment elder son of Dr W Bower of Oxford St Mary and late of Hendon

Private W L Roberts, Royal Warwickshire Regiment third son of Dr R L Roberts, of Ruabon North Wales

Lieutenant C T C Irvine 25th Punjabis son of the late Surgeon General J Irvine R N

Private J G Burnie Royal Fusiliers elder son of Dr W G Burnie, of Bradford

Private E J D Fooks Otago Regiment, younger son of Lieutenant Colonel G E Fooks I M S

Private C G Weldon South African Infantry only son of the late Dr G Weldon of London

Captain F L Newstead Durham Light Infantry eldest son of Dr G Newstead of Blyth Northumberland

OBITUARY OF THE WAR

ALFRED MAURICE THOMSON M B B S R U I

CAPTAIN ROYAL ARMY MEDICAL CORPS

Captain A. M Thomson who was killed in action in France on July 7th at the age of 31 was the only son of Alfred Thomson, of Marlborough Park Belfast Educated at the Royal Academical Institution and at Queen's College, Belfast he graduated M B in 1909 subsequently obtaining the D P H of Cambridge Volunteering for service soon after the outbreak of war he had been at the front since June 1st 1915 He was wounded when rescuing his adjutant under heavy fire, and as he continued to attend to the injured was subsequently killed outright by the explosion of his ammunition pouch

His commanding officer speaks of the loss of Captain Thomson as of a personal friend, and other letters from fellow officers and colleagues confirm the impression of a man quite fearless in the carrying out of his duties He was in practice in Belfast prior to obtaining his commission and his early death is keenly felt there

JOHN HENRY DYKE ACLAND M R C S ENG,

CAPTAIN ROYAL ARMY MEDICAL CORPS

Captain J H Dyke Acland who was killed on active service in France on the night of July 12th was born in 1880 and was the second son of the late Rev Henry Dyke Acland rector of Luccombe Somerset He was educated at Blundell s School and afterwards at St Thomas s Hospital where he qualified as M R C S and L R C P in 1905 He became house surgeon to the East London Hospital for Children Shadwell and house physician at the West London Hospital After completing these resident appointments he went to South Africa as medical officer to the Beira railways and practised for some years in Buluwayo the chief town of Southern Rhodesia At the outbreak of war he returned to England and applied for a commission in the Royal Army Medical Corps being gazetted lieutenant on Oct 17th 1914 In November of the same year he married Elizabeth Margaret daughter of Charles Corner of The Lodge High Ham near Langport Somerset He was an enthusiast in his work and of a genial and cheery disposition, which brought him many friends and made him welcome wherever he went. He met with his death in a way in which he himself would have desired — whilst endeavouring to relieve a wounded man

The officer commanding his battalion writes of Captain Dyke Acland He went out in the front of our line to try and find a wounded man who was reported to be here By the great misfortune he was hit by a bullet and died almost at once He is a very great loss to us besides being a skilful doctor he was a most cheery companion and we all miss him dreadfully He did many gallant work in the attack on July 1st I immediately recommended him for the Military Cross, and if he had been spared there is not the least doubt that he would have been awarded it He died whilst trying to perform an act of mercy "

HUGH GWILYM MORRIS B A M B, B CH OXON,

CAPTAIN ROYAL ARMY MEDICAL CORPS

Captain H G Morris, who was killed in action in France on July 14th, at the age of 32 was the only son of William Morris estate agent, of Glanllyn, Bala He was educated at Llandovery College and went on from there in 1904 to Oxford where he graduated B A in 1908 and M B in 1914 after having spent part of his medical course at the London Hospital Whilst an undergraduate at Oxford Captain Morris was keen on football, he played in the University team and was a reserve blue He also played for several London clubs and was a member of the London Hospital football team. In January, 1915 he took a commission in the Royal Army Medical Corps and was promoted Captain a year later He was killed outright whilst in the act of saving a wounded soldier under circumstances for which he was recommended by his commanding officer for the Victoria Cross

In a letter to Captain Morris s parents a colleague alludes to his popularity in the service and the fact that many of his fellow officers would miss him keenly The commanding officer wrote that he died as he had lived—a pattern of unselfishness—considering himself last. Captain Morris was married in 1911, and leaves a widow and two children

RICHARD FENTON THEODORE NEWBERY, M B CH B EDIN,

LIEUTENANT ROYAL ARMY MEDICAL CORPS

Lieutenant R F T Newbery, who was killed in action in France on July 14th at the age of 25 was elder son of the late E C Newbery, and was born at San Remo, spending his early years there and at Nice He was educated at Tonbridge School and after passing the London matriculation examination he entered as a student of medicine at Edinburgh University graduating there in March 1915 As an undergraduate he was an active member of many of the students gatherings being senior president of the Philomathic Society in the year 1914-15 Besides this he took a keen interest in social work and belonged to the University Settlement After a short period as junior house surgeon at the Edinburgh Royal Infirmary he joined the Royal Army Medical Corps in November 1915 and was attached to the Northamptonshire Regiment Recommended for the Military Cross on July 1st he was killed instantaneously a fortnight later by a shell as he was attending the wounded

One of his old Edinburgh teachers writes of Lieutenant

Newbery as a man on whom he could always depend for carrying out intelligently and well whatever practical work was entrusted to him. It is evident from their letters that his men had a similar confidence in him "He always looked after us so well, and would never lead us to a place he would not go himself" His coolness and efficiency in danger were products of his self forgetfulness and a desire to do his duty without external show

---

THE CENTRAL MEDICAL WAR COMMITTEE

The Committee met on Wednesday last, the time being mainly occupied in considering, sitting as the Central Professional Committee applications for exemption from military service referred to the Committee by local tribunals

The difficulties that might arise in connexion with disabled soldiers came under discussion, for it was recognised that it might be necessary in the interests of these men to retain at certain hospitals medical practitioners who are within the age limit for accepting commissions

---

THE PENSIONS SCALE FOR AMPUTATIONS IN THE NAVY

Dr Macnamara stated in Parliament on Wednesday that the Admiralty has adopted the scale of pensions for amputations which was settled by the Chelsea Commissioners for the Army Up to the adoption of the new scale the Admiralty allowance was 10*s* 6*d* a week in respect of the loss of a limb The Army scale is as follows —Loss of leg Off up to the hip, 16*s* (weekly), short thigh, 14*s*, above the knee, 12*s* 6*d*, below the knee, 10*s* 6*d* Loss of arm Right arm to the shoulder, 16*s*, left arm to the shoulder, 15*s*, above or through elbow joint (right arm), 14*s*, (left arm), 13*s*, below the elbow (right arm), 11*s* 6*d*, (left arm), 10*s* 6*d*

HOSPITAL UNITS FOR RUSSIA SURGEONS WANTED —The Joint War Committee of the British Red Cross Society and the Order of St John of Jerusalem in England is shortly despatching two field hospital units for service in Southern Russia We are asked to state that there are still vacancies for two experienced surgeons in these units, and the Committee would be glad to receive immediate offers from surgeons who are willing to proceed abroad and are able to do so under the present War Office Regulations Application should be made, if possible in person, at 11 o'clock any morning, at 83, Pall Mall, Room No 93 or by appointment at other hours

THE PAY OF A SPECIAL RESERVE R A M C OFFICER —We have received the following letter from a correspondent who considers that the inequalities of pay as shown by the sums received by Special Reserve and Temporary officers, ought to be abolished —"I have recently completed two full years of active service at home and abroad As a Special Reserve R A M C officer I had already been trained for my duties and was also required to give my services immediately on mobilisation I had received three retaining fees, each of £20—not an extravagant allowance considering that I had to leave my practice without even an opportunity to introduce my patients to a deputy I wish to compare my receipts during the two years from army sources with that of an hypothetical temporary lieutenant, R A M C, who should have performed exactly the same duties but who, of course, was not already trained left his practice at his own convenience, and had had no retaining fees My total receipts, including allowances for travelling and every other sort of payment, were £877 0*s* 6½*d*, which works out at 24*s* a day (About £600 of this was taxed before receipt so that I did not actually handle this sum) The temporary officer would have received for the same duties £997 13*s* 11½*d*, i e 27*s* 3*d* a day Deducting from both allowances for equipment on mobilisation for travelling, and for extra duty (e g as surgeon, in charge of hospital, &c) the two sums would be £786 3*s* 0½*d* and £926 16*s* 5½*d* or 21*s* 6*d* and 25*s* 4*d* a day—roughly my extra experience and extra readiness has cost me £120 Not very long ago Mr Tennant stated in the House of Commons that there was not much difference in the pay of Special Reserve (and Territorial who are similarly penalised) officers I find £60 a year quite an appreciable difference, and venture to think that most medical men will share that view As the question of what the officer belonging to each class actually gets is complicated by the allowances each may draw, and so lends itself admirably to mis-statement, I hope that you may find room for this short statement."

TWO YEARS' WORK BY THE WOUNDED ALLIES' RELIEF COMMITTEE.—The committee was one of the first war charities to be started after the outbreak of war the nucleus having been formed on the evening of August 4th, 1914 the very day of the declaration of war by Great Britain The first task of the committee was to help to bring wounded Belgian soldiers to England and to distribute them in hospitals Since then the relief work has extended to many other spheres, and touches in one way or another all our Allies With regard to activities for Belgium, the committee has maintained two homes for disabled Belgian soldiers in England, where they have been fitted with artificial limbs and taught various trades to render them self supporting, and it also keeps up a sanatorium at Eastleigh for Belgian soldiers suffering from phthisis, it has presented to the Belgian Army four bath caravans for use at the front, also a caravan soup-kitchen to supply the troops in the trenches with hot tea, coffee, or soup and, in addition, two bath caravans made on an improved plan and capable of furnishing 70 hot baths an hour

In France the committee is maintaining two hospitals for French soldiers—the one at Limoges, containing 225 beds, the other at Lyons, with 300 beds

To the Russian Red Cross Society the committee has given four motor ambulances, each containing four stretcher beds and to the Italian Army it is supplying a motor operating theatre, the first of its kind ever constructed that will enable urgent operations to take place at the front and thus save the lives of many wounded men who might otherwise die on their way to hospital

Concerning relief work for Serbia and Montenegro, the committee sent out a fever unit, consisting of doctors and nurses, to Serbia and up to the time when the Austrians took possession of the country, it was maintaining one large hospital in Kragujevatch and another in Podgoritza, and since the retreat of the Serbian Army has sent out fresh units with stores and provisions to Corfu, where a vast amount of work has been and is being done, attending to the disease-stricken remnants of the Serbian Army

For the benefit of all our Allies the committee supplies from its hospital depôt all sorts of bandages and other hospital requisites, and in the first half of 1916 supplied the hospitals of our Allies with over 175,000 articles London hospitals for British wounded have also received gifts from the depôt And in addition to the activities referred to the committee has equipped and maintained various other hospitals and homes both at home and abroad, giving the relief that was needed when it was needed

HAROLD FINK HOSPITAL, PARK-LANE —Mrs Catherine Fink has endowed beds at this hospital to the extent of £5000, and has requested Dr Douglas Shields to administer the endowment fund The Duchess of Portland has consented to act as nominator of patients for the beds which are available for the free treatment of officers disabled by the war

"BEHIND THE LINES"—We have received Nos 1 and 2 (the May and June-July issues) of a little magazine with this title designed principally to interest and amuse the sick and wounded in the No 10 Stationary Hospital at the front No 1 contains a well reproduced photograph of the officers of the hospital and No 2 a reproduction of a photograph of the whole staff The address is "Somewhere in France

---

DONATIONS AND BEQUESTS —The Royal Westminster Ophthalmic Hospital has received a grant of £[illegible] from the trustees of the Zanz Bequest —Miss Burrell of Fairthorn Manor Cardridge has sent a donation of £600 to the Royal Hants County Hospital, Winchester

A CAB WHISTLING PROHIBITION —It is understood that regulations prohibiting whistling for taxi-cabs between the hours of 10 P M and 7 A M are to come in force next week in certain specified areas of London including those containing the military hospitals and perhaps in the whole London County Council area

Medical News.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND —As the result of the Final Examination held from July 4th to 25th, the following candidates were among those approved in the undermentioned subjects, but have not yet completed the examination —

Medicine—H Archer L.M S S A. Bristol C W Armstrong B.A Oxon, London J R Banks University College Althea Josephine Bolton Birmingham H C Broadhurst M.B B S Durh Durham Stella Churchill Royal Free W S Dawson Oxford and St Thomas's G Day St. Bartholomew's M A. B Demerdash University College A. R. Dingley St Bartholomew's H Evers M B B S Durh Durham H Fernando Ceylon and Middlesex Susan Alfreda Finch, Royal Free J Hale B A Cantab Cambridge and St. Thomas's J M Harrison St Thomas's J A. Hill London; G Hoffmeister Middlesex O C L. Hughes Birmingham S R Johnston University College G M Kendall B A Cantab Cambridge and St Thomas's E I Lloyd B A Cantab Cambridge and St Bartholomew's A. N McMillan M.P S Middlesex W W H Miles St Thomas's F M Mosely B A. Cantab, Cambridge and London C L. Odam B A Cantab Cambridge and Guy's Eleanor Joyce Partridge Royal Free Enid Maud Pfeil Royal Free B H Pidcock St Bartholomew's C N Ratcliffe Liverpool P R Riggall University College E D Roberts, M D Lausanne Lausanne R R. Scott Durham N M Sen Gupta, London F K Sidebotham B A. Cantab Cambridge and Guy's R G Simpson London, Flora Nihal Singh Calcutta and Royal Free J W G Steell, M.A. Oxon, Oxford and Manchester D Stewart Manchester M B M Tweed L S A Guy's Anna Petronella van Heerden Amsterdam G H Ward, B A. Cantab., Cambridge and St. Thomas's E Williams L.S.A. L R.C P Lond London Hospital T P Williams Middlesex and A. T Woolward B A. Cantab Cambridge and London

Surgery—J A. M Alcock, Guy's E J Ball Ph D Heidelberg Bristol; J F Carter Braine, Guy's P A Buxton B A. Cantab Cambridge and St George's W J Colborne Charing Cross A V S Davies St Mary's W S Dawson, Oxford and St Thomas's; A R. Dingley St Bartholomew's H Evers, M.B B.S Durh Durham H A. Faulkner Melbourne and Middlesex E. O Goldsmith B A Cantab Cambridge and St Bartholomew's L. Grey Cardiff and University College W O Holst Middlesex D B. S. Jones Charing Cross D L Lees Bristol; R T Lewis; University College J A. Martin Guy's R Moser St Bartholomew's; M A. Omar Cairo and Charing Cross Lily Fanny Pain L.D S Eng L.S.A Royal Free A. Pastel Charing Cross G Perkins B A. M B, B Ch Oxon, Oxford and St. Thomas's A Rodd University College R. R Scott Durham S N Scott Charing Cross J I Smith St Thomas's R. N Vakil University College S Vidot Guy's O Williams B Sc Wales Cardiff and University College and C Young University College

Midwifery—G Adler and E Ahmed London J A M Alcock, Guy's E M Atkinson St Bartholomew's H R Bickerton, B A. Cantab Cambridge and Liverpool H J Blampied St. Thomas's Hilda B Kathleen Brade M.Sc Manch Manchester J Brash, Cambridge and St Bartholomew's H C Broadhurst M B B S Durh Durham W S Brown B A Cantab Cambridge and St Thomas's J Burke Glasgow and London C H Carroll London H J C Churchill St Bartholomew's Hetty Ethelberta Claremont, Royal Free and St George's; G F Cobb St Bartholomew's K J Coombe St George's; A W A Davies and J E E de Robillard Guy's J R Dingley University College P R Doctor M B B S Bombay Bombay A F R. Dove M B, B S Durh Durham H W Eddison B A. Cantab Guy's A. A H El Zeneiny Cairo and London J S Ellis B A Cantab and L. H B Evans, B.A Cantab Cambridge and Guy's H Evers M B B S Durh Durham J H Ewen St Mary's H A Faulkner Melbourne and Middlesex S A Finch Royal Free F L Fonseka, Ceylon and St Mary's; F C A. Frith Bristol H D Gardner B A. Cantab. Cambridge and University College M D Geffen University College L. A Gibb B A. Cantab Cambridge and St Thomas's G H Gidlow Jackson B A Cantab Cambridge and London; H Gluckman London L B Goldschmidt King's College M Gourevitch, Paris and London H O Gunewardene King's College D V Halstead Guy's F G Harris London G C Hartley M B Ch B Birm Birmingham R B Hawes St Thomas's C F Hayward Birmingham and University College O C L Hughes Birmingham J M Hughes Middlesex J W D Hyde University College T G James Cardiff and Westminster; J I J Jenkins and N R Jenkins Cardiff and Westminster Tamara Jochelman M D Berne Berne and Royal Free S R Johnston University College M C Joynt Guy's G M Kendall B A Cantab Cambridge and St Thomas's J I Kuhne Charing Cross I N Lerl cor Guy's J D S Lewis B A Cantab Cambridge and St George's W H Maudling Charing Cross A. N McMillan M P S Middlesex; L C Moore Liverpool and St Thomas's A N Hord B Sc S Bartholomew's A H Morris Bristol; J W M Nicholl B A Cantab. Cambridge and Middlesex; C L Odam B A Cantab Cambridge and Guy's A L Packham L.D S Eng Middlesex Margaret Stuart Palmer Royal Free J A Panton Manchester G Perkin B A M B B Ch Oxon Oxford and St Thomas's A M Pickup Birmingham and University College C N Pink St Thomas's F Portas Westminster W L Powell Charing Cross; S B de G Prichard London M A Rahman University College A H Richardson St Thomas's P R Riggall University College; I D Roberts M D Lausanne Lausanne A Rose-Innes University College K M Ross London A H Samy Cairo and St Bartholomew's W M S [illegible] London G I L Simmons Guy's Flora Nihal Singh, Calcutta and Royal Free; I H Smith B A Cantab L D S Eng Cambridge and St George's N I Smith B A Oxon Oxford and St Bartholomew's J J Sarey M B Ch B Birm Birmingham

J R. W Stephens Manchester H Sterne-Howitt Durham and Guy's I H Syed Bombay and Manchester C H Terry B.A Oxon Oxford and St. Bartholomew's J F Twort London Anna Petronella van Heerden, Amsterdam S A. T Ware St Thomas's H G Watters London A. S Westmorland St. Mary's E Williams L S A L R C P Edin London L. H. Woods St Bartholomew's and E B Woolf London

UNIVERSITY OF LONDON —At examinations held recently the following candidates were successful —

FIRST EXAMINATION FOR MEDICAL DEGREES

Thomas Adam St Bartholomew's Hospital Dulcie Stapleton Adkins and Doris Elizabeth Alcock London (Royal Free Hospital) School of Medicine for Women Christopher Howard Andrewes, St. Bartholomew's Hospital Marjorie Henrietta S Auden Ladies College Cheltenham †Edward Townley Bailey Epsom College Frances Sophia Barry and Geraldine Mary Barry London (Royal Free Hospital) School of Medicine for Women; Davis Evan Bedford, Epsom College Percy Croad Brett, St Mary's Hospital Ralph Vipont Brown Bootham School Muriel Burton Buckley London (Royal Free Hospital) School of Medicine for Women *†Maurice Danks Cadman Newport Grammar School; †Frederick Cecil Wray Capps Epsom College Arthur Nicholas Carter University College Annie Frances Mary Christie London (Royal Free Hospital) School of Medicine for Women Florence Ruth Clulow Newnham College John Joseph Coghlan, London Hospital; Julius Cohen St. Mary's Hospital Leslie Barrett Cole, Leighton Park School Reading Nancy Macnaughton Coutts Elsie Eleanor Cowperthwaite and Barbara Cubitt London (Royal Free Hospital) School of Medicine for Women Kenneth James Herbert Davies Guy's Hospital Arnold Gillett Dobrashian, University College Kenneth Henry Doouss St Bartholomew's Hospital Edith Monica Down London (Royal Free Hospital) School of Medicine for Women Nicholas Bernard Dreyer Guy's Hospital Archibald Glen Duncan London Hospital Gertrude Rose Stewart Ericson and Edith Marian Evans, London (Royal Free Hospital) School of Medicine for Women Gertrude Evans Croydon High School Hubert Holdrick Fisher Epsom College Ena Dorothy Foster and Ada Marion Freeman London (Royal Free Hospital) School of Medicine for Women Leslie French B Sc South-Western Polytechnic Institute Arthur John Gardham, Bancroft's School; Janet Katharine Gatty Elizabeth Mai Genge and Madeline Giles London (Royal Free Hospital) School of Medicine for Women *Humphrey Hart Gleave University of Leeds Harry Gerald Goldwater, University College Nellie Gray, Perse High School Frances Mary Hamer Girton College Katharine May Harbord London (Royal Free Hospital) School of Medicine for Women Henry Albert Harris University College Cardiff, and private study Muriel Minnie Harris London (Royal Free Hospital) School of Medicine for Women Marjorie Christina Hawkins University College Cardiff Hilda May Haythornthwaite London (Royal Free Hospital) School of Medicine for Women Robert Ian Alexander Hicks Bootham School William Clifton Vernon Higginson, St Bartholomew's Hospital; Phyllis Mary Horton London (Royal Free Hospital) School of Medicine for Women William David Hoskins Margaret Olwen Howell and Gilbert Haywood Howells University College Cardiff Donald Hunter London Hospital Margery Kathleen Illingworth London (Royal Free Hospital) School of Medicine for Women Marjorie Mary Jefferson Victoria University of Manchester Winifred Mary Jenkins B Sc and Doris Eleanor Parker Jolly London (Royal Free Hospital) School of Medicine for Women David John Jones University College Cardiff Dilys Menai Jones University Tutorial College and private study Winifred Angela Fanny Kann Dorothy Maud Kemp and Kathleen Helena Beatrice King London (Royal Free Hospital) School of Medicine for Women Cyril John Noel Lambert, St Paul's School; Joseph Victor Landau St Bartholomew's Hospital Anna Gwenllian Mary Lewis, University College Cardiff; Reginald Cyril Lightwood, King's College Margaret Longbottom, London (Royal Free Hospital) School of Medicine for Women Alan Fleming McGlashan Epsom College Alan McKenzie Guy's Hospital Rupert Alexander Madgwick London Hospital Henrietta Alexandrina Clark Main London (Royal Free Hospital) School of Medicine for Women Rex Godfrey Blake Marsh St Thomas's Hospital Dora Mason London (Royal Free Hospital) School of Medicine for Women; Shafik Fahmy Mina University College; Iva Clare Marion Moloney and Violet Orr Moore London (Royal Free Hospital) School of Medicine for Women Haydn Jones Morris University College Cardiff Herman Mould University College David Clark Muir Middlesex Hospital Christopher Wesley Narbeth St Bartholomew's Hospital Eva Joyce Newton, London (Royal Free Hospital) School of Medicine for Women; Bertram Sydney Nix London Hospital Sybil Mary Nuttall and Helen O Brien London (Royal Free Hospital) School of Medicine for Women Charles Lye Oliver Epsom College Margery Olivier London (Royal Free Hospital) School of Medicine for Women and Birkbeck College Alice Owen London (Royal Free Hospital) School of Medicine for Women Rupert John Parry University College Cardiff Phoebe Myfanwy Phillips Tressilla Laura Pires and Alice Dorothy Pocock London (Royal Free Hospital) School of Medicine for Women Wilfrid Robert Hollies Pooler King Edward's High School Birmingham Carrie Ethel Pratt and Louise Agnes Procter London (Royal Free Hospital) School of Medicine for Women; Montague Henry Rendall B Sc University College Cardiff and private study Hilda Winifred Richards London (Royal Free Hospital) School of Medicine for Women Philip Lawrence Richardson Guy's Hospital Isabella McDougall Robertson London (Royal Free Hospital) School of Medicine for Women William George Rose St Mary's Hospital Hilda Marjorie Stebbing Russell, London (Royal Free Hospital) School of Medicine for Women Herbert Leyland Sackett St Bartholomew's Hospital Maud Sanderson and Hilda Mildred Sansom London (Royal Free Hospital) School of Medicine for Women Margaret Scott Moncrieff London (Royal Free Hospital) School of Medicine for Women and University Tutorial College John St Clair Shadwell, Epsom College Edith Hilda [illegible] Ada Spencer B A. London (Royal Free Hospital) School of Medicine for Women; Philip Steinberg London Hospital George Henry T [illegible] Storin, Epsom College Helen Caroline

Tompson London (Royal Free Hospital) School of Medicine for Women Frederick Henry Wickham Tozer and Mark Treisman London Hospital Edith Helen Trimmer London (Royal Free Hospital) School of Medicine for Women Eileen Maud Turner Winchester School for Girls William Gilbert Desmond H Urwick St Bartholomew's Hospital Doris Lyne Veale and Norah Walden London (Royal Free Hospital) School of Medicine for Women Kenneth Leslie Ward London Hospital Mildred Warde Victoria University of Manchester Lewis John Watkins Pontypridd Intermediate School Agnes Edie Westwood Agnes Sidney Wilkins and Ada Kathleen Williams London (Royal Free Hospital) School of Medicine for Women David Charles Williams London Hospital and University Tutorial College and John Wilson B Sc, Birkbeck College and Northern Polytechnic Institute

*Awarded a mark of distinction in Inorganic Chemistry
†Awarded a mark of distinction in Physics
‡Awarded a mark of distinction in Biology

SECOND EXAMINATION FOR MEDICAL DEGREES PART I

Iskander Mikhail Abd El Said King's College Sarah Elizabeth Andrews and Kathleen Ardell London (Royal Free Hospital) School of Medicine for Women Moshek Zelmanovitch Bochenek, London Hospital, Muriel Burton Buckley London (Royal Free Hospital) School of Medicine for Women Thomas Harold Burlend B Sc private study Geoffrey Hugh Alexander P Clavier London Hospital Saul Cohen Guy's Hospital Alison Margaret Collie London (Royal Free Hospital) School of Medicine for Women Philippe Couacaud Guy's Hospital Catherine Agnes Cowan Sarah Helen Davies and Kathleen Field B A. London (Royal Free Hospital) School of Medicine for Women Isaac Frost and Theodore Franz Handel King's College Henry Albert Harris University College Cardiff and private study Reginald W Patrick Hosford St. Bartholomew's Hospital Winifred Mary Jenkins, B Sc. London (Royal Free Hospital) School of Medicine for Women Hassan Kamal King's College Mary Elisabeth Kennedy Gir on College Doris Gertrude Knowles London (Royal Free Hospital) School of Medicine for Women *Morris horn London Hospital Albert Ernest Lorenzen St Bartholomew's Hospital Leslie Lyne, Guy's Hospital Gwendolen Winifred Trymer Lynn, London (Royal Free Hospital) School of Medicine for Women Aziz Abd el Sayed Mansour King's College Margery Olivier Dorothy Pantin and Marjorie Pierce London (Royal Free Hospital) School of Medicine for Women Olive Gwendoline Potter Girton College Cyril Mayberry Probert University College Cardiff Joseph Pronjansky London Hospital Beatrice Davidine Pullinger London (Royal Free Hospital) School of Medicine for Women Henry Elliott Reburn, King's College Eleanor Margaret Reece and Esther Rickards London (Royal Free Hospital) School of Medicine for Women; Herbert Leyland Sackett St Bartholomew's Hospital Albert Ernest Sawday Guy's Hospital Ernest Livingstone Sergeant, London Hospital Campbell Shaw, St. Bartholomew's Hospital William Arthur Merrett Smart B Sc University Tutorial College Alfred William Lumsden Smith Derby Technical College and private study Kathleen Annie Harvey Sykes University of Liverpool Arthur Walford Taylor St Bartholomew's Hospital Beriah Melbourne G Thomas University College Cardiff Raphaël Thursz, King's College Kathleen Mary Tillyard Newnham College Madeline Hilda Jane Umpleby London (Royal Free Hospital) School of Medicine for Women Alfred Basil Keith Watkins London Hospital Anna Braithwaite Whitney London (Royal Free Hospital) School of Medicine for Women Kathleen Mary Wilkinson University of Birmingham David Charles Williams London Hospital Lucy Wills and Grace Elizabeth Winn London (Royal Free Hospital) School of Medicine for Women and Jane Edith Wood University of Leeds

*Awarded a mark of distinction.

APOTHECARIES' HALL OF IRELAND.—The following gentlemen have been elected members of the Court:—Governor Mr T G McGrath, Deputy Governor Mr H W Mason, Representative on the General Medical Council, Dr E Magennis Directors Mr M J Burke Kennedy, Mr A Charles, Mr J T D Crinion Mr Delany, Mr O'C J Delahoyde Mr W J Healy, Mr M Keogh, Dr Magennis Mr McGrath Dr J C McWalter, Dr Daniel, Mr Merrin, Dr O'Sullivan, and Mr J Sheppard, Registrar, Mr Mason.—At examinations held recently the following candidates were successful:—

PRIMARY EXAMINATION

Chemistry.—D McLaughlin
Physics.—J T Appleton J Corcoran, J Kennedy and D McLaughlin
Biology.—J McCarthy J Keeney D McLaughlin and M Ryan
Completed Examination.—J T Appleton J Corcoran D McLaughlin and J McCarthy

INTERMEDIATE EXAMINATION

Materia Medica.—J Warden

FINAL EXAMINATION

Medicine.—D Crowley and J V Coghlan
Surgery.—J H McKenna.
Completed examination and granted the Diploma.—J V Coghlan and J H McKenna

LONDON HOSPITAL MEDICAL COLLEGE.—Scholarships and prizes were awarded to the following students during the past session:—

Entrance Scholarships.—Buxton Scholarship in Arts, B S Nisse Science Scholarship open to students of Epsom College, A. R Stearn
Prizes and Certificates.—Clinical Medicine, prize A. G Harsant honorary certificates: R C Simpson and G P B Huddy Clinical Surgery prize A. G Harsant honorary certificate H W L Molesworth Clinical Obstetrics prize N S Hewitt and G Adler (equal prize divided) honorary certificates: R G Simpson Andrew Clark prize in Clinical Medicine and Pathology prize A. G Harsant honorary certificates H W L Molesworth and G P B Huddy Le heby prizes in Chemistry (1) Organic Chemistry H S Cohen and J Fanning (equal, prize divided) (2) Inorganic Chemistry D Hunter honorary certificates M Marcus J J Coghlan and P S Elsberg Sutton prize in Pathology prize R G Simpson honorary certificate A. G Harsant Elementary Clinical Surgery prizes M Shimberg I H Zortman W Eidinow and E. Miller honorary certificate C F Rainer Minor Surgery prizes J K Sanyal M W Bulman E L. Sergeant H Barker and G Newman (equal prize divided) Practical Anatomy first prize M W Bulman second prize H M Gerson and J Fanning (equal prize divided) Anderson prizes in Elementary Clinical Medicine prizes: D C Beaumon I H Zortman, and G R Woodhead honorary certificate R Theron

ST THOMAS'S HOSPITAL.—The following Entrance Science Scholarships have been awarded:—First Scholarship M D Cadman, £150, Second Scholarship R G B Marsh, £60 Arts J G Churcher, £15 15s

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS

Medical Arrangements in Mesopotamia

IN the House of Lords on Tuesday, August 15th, Lord ISLINGTON stated that the chief cause of the sufferings of the troops in Mesopotamia had been lack of transport, but an increase was being provided He said that in the report of the Vincent Commission special recognition was made of the very valuable services that were rendered by officers and men of the Royal Army Medical Corps and of the Indian Medical Service

HOUSE OF COMMONS

WEDNESDAY, AUGUST 9TH

Petrol for Private Hospitals

Mr BROOKES asked the Financial Secretary to the War Office whether his attention had been called to the difficulty of carrying on many of the private hospitals for wounded soldiers owing to the inability of those providing them to obtain the necessary supplies of petrol.—Mr FORSTER replied The attention of the War Office has been called to a few instances where inability to obtain necessary supplies of petrol have been alleged, and the hospitals concerned have been informed how to obtain their requirements The proper course is for hospitals to bring their difficulties in this matter to the notice of the general officers commanding in-chief of the Commands It would save time if hospitals would communicate direct with the Commands with whom the decision rests

THURSDAY AUGUST 10TH

Prisoners of War

Lord ROBERT CECIL (Under Secretary for Foreign Affairs) informed Mr HUME WILLIAMS that Switzerland had fixed no maximum number of prisoners of war which she would accept Time was required to examine the prisoners who were scattered about all over Germany, but it was understood that 764 British prisoners were to arrive in Switzerland on August 11th The Government were proposing that the Swiss Medical Commissions should visit this country and Germany every quarter

Unregistered Dentists and Cocaine

Answering Captain DOUGLAS HALL Mr H SAMUEL (Home Secretary) said In response to the representations which have been made to me from many quarters of the House I propose to extend the temporary permit which I have already granted for the purchase of cocaine preparations by unregistered dentists, and in the meantime to make further inquiries into the subject

The Treatment of Nerve shaken Soldiers

Mr BYRNE asked the Parliamentary Secretary to the Local Government Board whether it was in contemplation to institute convalescent homes, affording cheering surroundings and suitable employment for uncertifiable nerve shaken soldiers of the rank and file who after discharge from the Army, were no longer under military control and who being civilians could not legally be placed under military control without formal certification.—Mr JAMES HOPE (on behalf of Mr HAYES FISHER) answered The Statutory Committee are giving very careful consideration to the question of institutions or some alternative treatment for uncertifiable nerve shaken soldiers My right honourable friend is informed that under the arrangements made by the War Office such men are retained in military hospitals as long as they require specialist medical in patient treatment

Health of Mesopotamia Force

Replying to Sir E CORNWALL Mr FORSTER (Financial Secretary to the War Office) said I cannot say that the general health of the troops in Mesopotamia has been good Every effort is however being made to combat the sources of disease and the Sanitary Commission in t

Mediterranean has been sent to Mesopotamia to assist the local military authorities

Medical Arrangements at Salonica

Mr G FABER asked the Financial Secretary to the War Office whether there was an insufficiency of sun helmets for our troops at Salonica and an insufficiency of punkahs for the sick and wounded there —Mr FORSTER No, sir There is no insufficiency of sun helmets A sufficient supply to cover issues to the whole force was sent from Egypt last month No representations have been received as to the insufficiency of punkahs for the sick and wounded

Mr SHIRLEY BENN asked whether, considering the disquietude felt throughout the Empire owing to the medical arrangements in the past in Mesopotamia he could tell the House that the medical arrangements at Salonica was thoroughly satisfactory —Mr FORSTER answered Perhaps I cannot do better than read to the House an extract from a letter written by the Red Cross Commissioner in Macedonia Sir Courtauld Thomson, who has been familiar with the medical arrangements in France and other theatres since the beginning of the war He writes as follows under day July 26th —

And her striking change here is the progress that has been made in the hospital accommodation and arrangements I have been in all your general hospitals and many of the casualty clearing stations and field ambulances and the standard of efficiency seems very high I have been impressed by the officers commanding It is a pleasure to see the pride which they take in their own unit and their keenness to try and make it the best of its kind The last three weeks have been a great strain on everyone but the medical service has risen splendidly to the occasion

It is the case that there has been a good deal of malaria amongst the troops in the Struma Valley but this is now I am glad to say lessened

MONDAY AUGUST 14TH

Medical Arrangements in Mesopotamia

Sir HENRY CRAIK asked the Secretary for India whether he had now communicated with the authorities in India and obtained their consent to the publication of the report of Sir W Vincent General Bingley and Mr Ridsdale with regard to the medical arrangements and transport in Mesopotamia and whether the report would be laid upon the table before the recess —Mr CHAMBERLAIN said in reply Copies of the report and of the Commander in Chief's Memorandum upon it were despatched from India last month The appendices including the evidence were sent early this month I am informed by the Viceroy that a general review of the report and its appendices will follow as soon as they have been fully examined Since the Vincent Commission reported Parliament has appointed a Statutory Commission to inquire ' into the origin inception and conduct of the operations of war in Mesopotamia including *inter alia* ' the provision for the sick and wounded ' and this Commission is specifically directed to proceed with all possible expedition to inquire with regard to the provision for the sick and wounded " and to report the result of their inquiries on this matter as soon as they are completed ' All the documents emanating from the Vincent Commission will be laid before the Statutory Commission as soon as they are received and will I think, greatly facilitate their task But meanwhile the matters treated by the Vincent Commission must be considered as still *sub judice* and their Report cannot be published The House has the assurance of my right honourable friend the Secretary of State for War that everything possible is being done to remedy the defects disclosed which were largely though not entirely due to difficulties of transport I should add that I have seen an advance copy of the Report In addition to criticisms of Indian military organisation—a matter which is now engaging the serious attention of H M Government—it mentions certain officers by name as having a grave responsibility in connexion with the state of affairs disclosed by the investigation For various reasons the Commission was I believe unable to examine any of these officers in person They will no doubt be so examined by the Statutory Commission to whom their case and the measure of their responsibility will be considered Meanwhile I may say that the officers so named have vacated their positions and new appointments have been made to the posts formerly held by them

Sir E CARSON Is the right honourable gentleman aware that there are still unsatisfactory reports coming from Mesopotamia and can he assure the House that any suggestion made by the Vincent Commission will be at once carried out ?—Mr CHAMBERLAIN in the course of his reply said I am aware that everything is not absolutely satisfactory That was stated the other day by the Secretary for War Although difficulties of transport have not yet been wholly overcome and cannot be overcome for some little time I believe that matters have much improved The new Director of Medical Services in India went to Mesopotamia on his way to India and dealt with the defects he found and I believe everything possible is now being done to set things straight [illegible]

Sir H CRAIK Are we to understand that the only effect of the appointment of a Statutory Commission up to now has been to delay the issue of the report of the Vincent Commission, which was appointed in February last?—Mr CHAMBERLAIN The appointment of the Statutory Commission will not be used as a reason for not taking immediate steps when such are shown to be necessary

Mr R MCNEILL Will the report of the Vincent Commission be published?—Mr CHAMBERLAIN The military advisers of the Government have reported that it would be contrary to the public interest to publish the papers in regard to the operations because they would give information of military value to the enemy I cannot therefore promise to present any further papers in regard to military affairs or operations until they have been seen and examined by the General Staff

Medical Women and the War Office

Mr DICKINSON asked the Financial Secretary to the War Office whether women doctors were now being employed upon foreign service under the War Office, and if so, whether they were entitled to receive the same pay as male doctors so employed, whether they were given the same allowances for rations foreign service, &c as the men, and if not what was the reason for this differentiation —Mr FORSTER replied Women doctors will receive the same pay and allowances as male doctors similarly employed

TUESDAY, AUGUST 15TH

Medical Services for Munition Workers

Answering Mr MACMASTER, Dr ADDISON (Parliamentary Secretary to the Ministry of Munitions) said Every effort is being made to provide a suitable medical and nursing service in munition factories so far as may be necessary Special arrangements are made with regard to workers in explosive and filling factories and for those engaged in other dangerous occupations In connexion with these further steps are at present under consideration It is obvious that the means for obtaining these services are affected by the demand for medical services on the part of the military and naval authorities and of the civilian population

WEDNESDAY, AUGUST 16TH

Infectious Paralysis in New York

Commander BELLAIRS asked the President of the Local Government Board what immediate steps were to be taken in regard to the alarming outbreak of infectious paralysis in New York in order to prevent it spreading to this country —Mr LONG replied We are fully acquainted with the facts of this case with the nature and history of the disease so far as it is known, and with the steps that are being taken to deal with it in New York Cases of this disease have occurred here for a long period The ordinary administrative machinery for the protection of this country is sufficient, and no special steps are, I consider, called for in respect of this disease

Appointments.

Successful applicants for vacancies Secretaries of Public Institutions and others possessing information suitable for this column are invited to forward to THE LANCET *Office directed to the Sub Editor not later than 9 o clock on the Thursday morning of each week such information for gratuitous publication*

ANDREWS WILLIAM HENRY L R C P & S Edin J F P S Glasg has been appointed Acting Deputy Medical Officer for the Thirteenth District of the Kingsbridge (Devon) Union

LYON GEORGE ALEXANDER M A Oxon M D Brux L R C P M R C S D P H Deputy Acting Medical Officer of Health for Torquay

PATTERSON NORMAN M B F R C S Assistant Surgeon to the Throat and Ear Department at the London Hospital

SMALE OSWALD RIDLEY B A M B B C Cantab L R C P M R C S Acting Deputy Medical Officer for the Linkinhorne District by the Liskeard (Cornwall) Board of Guardians

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index)

When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor

BIRKENHEAD UNION INFIRMARY —Female Resident Assistant Medical Officer Salary at rate of £[illegible] per annum with board &c

BRISTOL EYE HOSPITAL —House Surgeon Salary £[illegible] per annum with board &c

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST VICTORIA PARK —Resident Medical Officer Salary at rate of £200 per annum with board &c

DERBYSHIRE COUNTY COUNCIL —Two School Medical Officers Salary £[illegible] per annum

EVELINA HOSPITAL FOR CHILDREN Southwark London S E —House Physician Salary at rate of £[illegible] per annum with board &c

EWELL (COLONY (LONDON COUNTY ASYLUM) Ewell Surrey —Locum Tenens Medical Officer Salary 6 guineas per week with quarters board &c

GUILDFORD ROYAL SURREY COUNTY HOSPITAL—House Surgeon

HACKNEY UNION INFIRMARY —Junior Assistant Medical Officer Salary £250 per annum with board and furnished apartments

HOSPITAL FOR SICK CHILDREN Great Ormond street London —Casualty Medical Officer Salary £200 per annum with luncheon Also Assistant Casualty Medical Officer for six months Salary £30 with board &c

LEEDS PUBLIC HEALTH DEPARTMENT —Female Medical Assistant for Maternity and Child Welfare Work. Salary £350 per annum

MACCLESFIELD GENERAL INFIRMARY —Resident House Surgeon Salary £180 with board &c

MAIDSTONE WEST KENT GENERAL HOSPITAL.—Junior House Surgeon Salary £125 per annum with board, &c

MANCHESTER HOSPITAL FOR CONSUMPTION AND DISEASES OF THE THROAT AND CHEST —Resident Medical Officer for the In patient Department Bowdon Cheshire Salary £300 per annum with board apartments and railway contract to Manchester

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN Park place, Cheetham Hill road.—Female House Surgeon Salary £120 per annum with board &c

NORTHAMPTON COUNTY BOROUGH —School Medical Officer and Assistant Medical Officer of Health Salary £350 per annum rising to £400

NOTTS COUNTY COUNCIL —Resident Medical Officer at the Ransom Sanatorium Sherwood Forest Mansfield Salary £250 per annum, with board &c

SHEFFIELD CHILDREN'S HOSPITAL Western Bank —House Surgeon Salary £180 per annum, with board &c

SHEFFIELD JESSOP HOSPITAL FOR WOMEN —Junior Female House Surgeon unmarried for Gynæcological and Maternity Departments Salary £160 per annum with board &c

SHEFFIELD ROYAL HOSPITAL —House Physician Casualty Officer and Assistant House Surgeon Salaries respectively £140 £130 and £125 per annum with board &c

SOUTH LONDON HOSPITAL FOR WOMEN South Side Clapham Common S W —House Physician also House Surgeon for six months Salaries at rate of £100 per annum with board &c Also Temporary Anæsthetists Honorarium 10s 6d per attendance

THROAT HOSPITAL, Golden square W —Resident House Surgeon

TUNBRIDGE WELLS GENERAL HOSPITAL — Two Female House Surgeons Salary £150 per annum, with board &c

THE Chief Inspector of Factories Home Office, London S W gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Clwtybont, Carnarvon at Llansawel, Carmarthen and at Walthamstow Essex

Births, Marriages, and Deaths.

BIRTHS

BOWEN —On August 12th at Tower House Warlteraville-road Crouch End to Daisy wife of Lieutenant C G Bowen R A.M.C Chatham House Chislehurst, a son

COLYER —On August 14th at Parkhurst Claygate Surrey the wife of Captain Claude G Colyer R A M C of a daughter

FIDDIAN —On August 12th at Cambridge to Captain J V Fiddian R A M C and Mrs Fiddian—a daughter

GLAISTER —On August 4th at Weir Cottage Chertsey Surrey the wife of Captain J Norman Glaister R A M C of a son

HOLLAND —On August 16th at 55 Queen Anne-street W the wife of Eardley Holland M D of a daughter

YOUNG —On August 11th at St Brelades Woodcote Park road Epsom the wife of Captain John Benson Young R A.M C of a son

MARRIAGES

BONNEY—WILLIAMS —On August 9th at St Mary Abbots Kensington Ernest Henry Bonney M R C S &c to Gertrude Mary daughter of Mr and Mrs Edmund G Williams of Stanford-road Kensington W

DAVEY—STAPLES BROWNE.—On August 12th at St Mary's Church Bampton Oxfordshire Thomas Ronald Davey Lieutenant R.A.M C to Mary Frederica only daughter of the late Frederick John Staples Browne of Launton and Bampton

PRATT—WINCKLEY —On August 8th at the Parish Church Houghton on the Hill Leicestershire by the father of the bride Captain Oliver Beckley Pratt R.A.M.C to Catharine Rose Thorold eldest daughter of the Rev S Thorold Winckley and Mrs Winckley

DEATHS

BELLBY —killed in action on April 23rd 1916 Julius Henry Bellby M B Captain R A M C

BURNIE.—Private John Gilchrist Burnie Royal Fusiliers (University and Public Schools Corps) 24 years of age killed in action at the taking of Delville Wood Old Salopian Hon Scholar of St John's College Oxford Elder and beloved son of Dr and Mrs Gilchrist Burnie Heaton Bradford

CLEMENS —killed in action North Sea, on May 31st on H.M S *Defence* Frederick William Theodor Clemens M B B S Lond Temporary Surgeon R N

TICEHURST —On August 10th at Playden Charles Sage Ticehurst M R C P M R C S L R C P L S A Lond late Surgeon Major (A C) 3rd V B (Duke of Connaught's Own) Hants Regiment aged 69 years

N B —A fee of 5s is charged for the Insertion of 2 notices of Births Marriages and Deaths

Notes, Short Comments, and Answers to Correspondents.

STUDENTS' NUMBER OF THE LANCET

INFORMATION intended for the Students Number of THE LANCET must be sent WITHOUT DELAY, addressed to the Sub Editor, and marked on the envelope "Students Number Only"

CHILDREN'S COUNTRY HOLIDAYS FUND

To the Editor of THE LANCET

SIR,—This beautiful sunshine is delightful for children in the country, but these hot summer days are very different in the close courts and back streets for the children of the town These children for whom the Children's Country Holidays Fund works are the children of our fighting men and of the men who are working to supply them with the means of fighting This year subscriptions are more than £1000 less than last year May I beg the help of your readers? I am, Sir yours faithfully

FRANCIS MORRIS
Chairman of the Fund

18, Buckingham street Strand, W C, August 12th, 1916

THE SPELLING OF CINCHONA

To the Editor of THE LANCET

SIR,—The interesting letter signed "W" in your issue of August 12th puts forward an explanation for the omission of the letter "h" in the spelling "chinchona," which hardly meets the case, for in the *Farmacopea Ufficiale del Regno d'Italia* we find "*China China Cortex Chinachina—Quinquina*" This corresponds more with W W Skeat's derivation (Etymological Dictionary) "The form Kina easily produces quinine and kinken would give both quinquina and (by modification) cinchona" C Ruiz writing more from a pharmacological than a philological standpoint writes "Linnæus gave the name of cinchona to this tree (C succirubra) in honour of the Countess del Chinchon who was reported to have introduced the bark into Europe in 1640" He however also says "Kina means in the language of the ancient Peruvians, bark, Kina Kina, a good bark From this the French have derived their present word Quinquina, the English their Quinine, and the Italians China . In Germany the Italian spelling has been adopted" The theory of Sir Clements R Markham, withal holds its ground "Most unfortunately Linnæus was misinformed as to the name of her whom he desired to honour The misled Linnæus spelt the word Cinchona (Gen Pl 171) and Cinhona (Gen Pl ed 1767), omitting one or two letters but the fact that he altered the spelling in his different editions proves beyond any doubt that he desired to spell the word correctly" Unfortunately, Linnæus died before the error was pointed out and corrected which was done by the Spanish botanists Ruiz and Pavon in 1778 the very year of Linnæus's death It has also been said that when the English spelling of the word was brought under the notice of the great Swedish botanist he considered that the "h" was excrescent and due to the palatalisation of the letter c" The introduction of the use of the plant in Europe is incorrectly ascribed to the Lady Ana de Osorio who in 1615 married Don Luis de Velasco who on the death of his father became Marquis of Salinas Lord of Carrion and a Knight of Santiago He died in 1619 and in 1621 the Marchioness of Salinas became the wife of Don Luis Geronimo Fernandez de Cabrera y Gotadilla, fourth Count of Chinchon, and on Jan 14th 1622, received the seals of office of Viceroy of Peru from his predecessor the Marquis of Guadalcazar But ere the Count del Chinchon left Spain the beautiful Ana de Osorio died and the second wife of the Count Francisca Henriquez de Ribera who accompanied him to Peru as Vice Queen fell ill of malarial fever was treated with Peruvian bark obtained from Don Francisco Lopez Cañizares, who was then Corregidor of Loxa by her physician Dr Don Juan de Vega. She made a quick and complete recovery but the disease recurred in 1639 and she died on her return journey to Spain with her husband who had resigned his vice royalty to his successor the Marquis of Mancera Thus we find it was the count who was the generous distributor of the famous powder We must, however, retain the spelling cinchona for as Murray (New English Dictionary) writes "The accepted form is too deeply rooted in botanical and chemical nomenclature to make this change expedient" I am Sir yours faithfully

Dublin August 12th 1916 GEORGE FOY

TACHYCARDIA A PERSONAL EXPERIENCE

To the Editor of THE LANCET

SIR,—Thirty seven years ago I had an a tack of tachycardia I was 20 years of age at the time living a sedentary life, and working hard as a medical student The quiet regularity of my life was interrupted in consequence of an invitation to supper at a friend s house I consumed more food that evening than I was in the habit of doing and part of the meal was Tangerine oranges I went to bed at 11 o'clock and at 2 A M I woke feeling very ill and as if about to die My heart was beating about 200 times per minute I got up at 5 A M and though feeling very feeble was able, by walking slowly, to get to the hospital, where I presented myself to one of the physicians He informed me that owing to the extreme rapidity of the heart s action he was unable to make a satisfactory examination but he thought I would soon be well again Next day I was almost well and the second day I was quite well This is the only attack I have had The cause in my case was probably toxæmia and so it probably is in other cases —I am Sir yours faithfully

August 12th, 1916 M D

LONGEVITY AMONG GREAT SOLDIERS

To the Editor of THE LANCET

SIR,—I have made a note of the age at death of a few of the well known great military leaders as follows Kitchener 66, Roberts 82 Gordon 52 Havelock 62, Clive 49, Wellington 83 Napoleon 52, Blucher 77 Ney 46 Marlborough, 72, Washington 67, Grant 63 Lee 62 Jackson 39 Cromwell 59, Peter the Great 53 Frederick the Great 74 Moltke 91 It would seem that the enormous stress and responsibility of leadership has no direct effect upon longevity, and that violent sudden untimely end is rare, only three or perhaps four falling under that category The ages of the 18 men added together make 1149 years, or an average of almost 64 years each It will thus be seen that the late Lord Kitchener had on this reckoning two years over the average length of life of the great military commanders I have intentionally not cited names as far back as Alexander the Great or Julius Cæsar who lived respectively to 33 and 56 I am Sir yours faithfully

London August 14th 1916 X Y Z

PEMMICAN

To the Editor of THE LANCET

SIR —Can any of your readers inform me of the origin of the word 'Pemmican or Pemican ' I know that it is North American Indian of some kind but what it really means I do not know and the dictionaries I have referred to up to now do not enlighten me Originally it seems to have been made of dried and pressed venison with fruits and sugar &c made into cakes but afterwards from beef I suppose it was made subsequently from beef because venison was not available —I am, Sir yours faithfully

August 12 h 1916 ENQUIRER

(Army Medical Officer —We cannot understand how such a position can have arisen and we believe that if the actual details were sent up the delay in payment would be rectified at once

COMMUNICATIONS not noticed in our present issue will receive attention in our next

METEOROLOGICAL READINGS

(Taken daily at 8.30 a.m. by Stewart's Instruments)

THE LANCET Office August 16th 1916

Date	[illegible] reduced to Sea Level and 32° F	Direction of Wind	Rainfall	Solar Radiation in Vacuo	Maximum Temperature in Shade	Min Temp	Wet Bulb	Dry Bulb	Remarks
Aug 9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	61	63	Overcast
10	[illegible]	S W	0.07	[illegible]	63	60	60	65	Fine
11	[illegible]	S W		[illegible]	63	[illegible]	[illegible]	[illegible]	Cloudy
12	[illegible]	S W	[illegible]	[illegible]	[illegible]	63	62	67	Cloudy
13	[illegible]	S W	[illegible]	[illegible]	[illegible]	[illegible]	63	66	Cloudy
14	[illegible]	S W	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	62	Cloudy
15	[illegible]	S W	[illegible]	[illegible]	[illegible]	[illegible]	62	62	Cloudy

The following magazines journals &c., have been received —

[illegible]

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c

POST-GRADUATE COLLEGE West London Hospital Hammersmith road W

MONDAY —2 P M. Medical and Surgical Clinics X Rays Mr Gray: Operations Mr B Harman: Diseases of the Eye. Dr Simson: Diseases of Women.

TUESDAY —2 P.M., Medical and Surgical Clinics X Rays Mr Baldwin Operations. Dr Banks Davis: Diseases of the Throat, Nose, and Ear Dr Pernet: Diseases of the Skin.

WEDNESDAY —10 A.M , Dr Saunders: Diseases of Children. Dr Banks Davis: Operations of the Throat Nose and Ear 2 P.M., Medical and Surgical Clinics X Rays Mr Pardoe Operations Dr Simson: Diseases of Women.

THURSDAY —2 P.M. Medical and Surgical Clinics X Rays Mr Gray: Operations Mr B Harman: Diseases of the Eye.

FRIDAY —10 A.M. Dr Simson: Gynæcological Operations 2 P.M , Medical and Surgical Clinics X Rays Mr Baldwin: Operations. Dr. Banks Davis: Diseases of the Throat, Nose, and Ear Dr. Pernet: Diseases of the Skin.

SATURDAY —10 A.M., Dr Saunders Diseases of Children. Dr Banks Davis Operations of the Throat, Nose, and Ear Mr B Harman: Eye Operations 2 P M. Medical and Surgical Clinics X Rays Mr Pardoe: Operations

NORTH EAST LONDON POST-GRADUATE COLLEGE Prince of Wales s General Hospital, Tottenham N

MONDAY —Clinics —10.30 A.M Surgical Out patients (Mr E Gillespie) 2.30 P M. Medical Out patients (Dr T R. Whipham): Gynæcological Out-patients (Dr Banister) 3 P M., Medical In patients (Dr R. M Leslie)

TUESDAY —2.30 P.M Surgical Operations (Mr Carson) Clinics:—Medical Out patients (Dr A. G Auld) Surgical Out patients (Mr Howell Evans) Nose Throat and Ear Out patients (Mr C H Hayton) Radiography (Dr Metcalfe) 3.30 P.M., Medical In patients (Dr A. J Whiting)

WEDNESDAY —Clinics:—2.30 P.M Throat Operations (Mr C H Hayton) Children Out-patients (Dr T R. Whipham) Eye Out patients (Mr R. P Brooks) Skin Out patients (Dr H W Barber) 3.30 P.M. Eye Operations (Mr R P Brooks)

THURSDAY —2.30 P.M Gynæcological Operations (Dr A. E Giles) Clinics:—Medical Out patients (Dr A. J Whiting) Surgical Out-patients (Mr Carson) Radiography (Dr Metcalfe) 3 P.M Medical In-patients (Dr R. M. Leslie)

FRIDAY —2.30 P M. Surgical Operations (Mr Howell Evans) Clinics:—Medical Out-patients (Dr A. G Auld) Surgical Out-patients (Mr E Gillespie) Eye Out patients (Mr R.P Brooks)

THE THROAT HOSPITAL, Golden square W

MONDAY —5.15 P M Special Demonstration of Selected Cases.

THURSDAY —5.15 P M Clinical Lecture

EDITORIAL NOTICES

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* 'TO THE EDITOR " and not in any case to any gentleman who may be supposed to be connected with the Editorial staff It is urgently necessary that attention should be given to this notice

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent *direct to this office*

Lectures, original articles, and reports should be written on one side of the paper only *and when accompanied by blocks it is requested that the name of the author and if possible of the article should be written on the blocks to facilitate identification*

Letters whether intended for insertion or for private information must be authenticated by the names and addresses of their writers not necessarily for publication

We cannot prescribe or recommend practitioners

Local papers containing reports or news paragraphs should be marked and addressed To the Sub-Editor "

Letters relating to the publication sale and advertising departments of THE LANCET should be addressed ' To the Manager "

We cannot undertake to return MSS not used

MANAGER S NOTICES

THE INDEX AND TITLE-PAGE TO THE LANCET

January to June, 1916

In view of the Government restrictions upon the supply of paper and the shortage of paper quite apart from these restrictions the Index and the Title page to the volume of THE LANCET which was completed with the issue of June 24th have been printed separately and copies have been supplied gratis to those subscribers who have up to August 17th intimated to us their wish to receive them Other subscribers will be similarly supplied so long as the stock remains unexhausted on application to the Manager THE LANCET Office 7 Strand London W C Such application should please be sent in a envelope direct to the Manager and not through [illegible]

Volumes and Cases

VOLUMES for the first half of the year 1916 are now ready
Bound in cloth, gilt lettered, price 16s., carriage extra
Cases for binding the half year's numbers are also ready
Cloth, gilt lettered, price 2s., by post 2s. 4d.
To be obtained on application to the Manager, accompanied by remittance

TO SUBSCRIBERS

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423 Strand London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Friday mail to all parts of the world

TO COLONIAL AND FOREIGN SUBSCRIBERS

Subscribers abroad are particularly requested to note the rates of subscriptions given on page 4

The Manager will be pleased to forward copies direct from the Offices to places abroad at the rates shown whatever be the weight of any of the copies so supplied

NEWSPAPERS FOR NEUTRAL COUNTRIES

Newspapers are not at present being sent forward to neutral European countries unless posted direct from the office of publishers or newsagents who have obtained permission from the War Office for this purpose. The Publisher of THE LANCET has obtained the required permission, and he will forward copies direct from the Office to any neutral country on receipt of instructions

Communications, Letters, &c., have been received from—

A.—Messrs Allen and Hanburys Lond Captain C H Attenborough R A M C Association for Moral and Social Hygiene Lond Organising Secretary of Anglo Egyptian Agency Lond Anglo-French Drug Co, Lond Mr J W Arrowsmith Bristol Sergeant J Anthony Ramsgate Ardath Tobacco Co, Lond Atlanta U S A Postmaster of Messrs Arnold and Sons Lond Major J M Atkinson R A M C Sir Clifford Allbutt Lond

B.—Messrs W H Bailey and Son Lond Dr Edwin Baily Messrs Butterworth and Co Lond Lieutenant Norman Bradly, R A M C Mr Frank Bawtree Lond.; Messrs John Bale, Sons and Danielsson Lond Bury Infirmary Hon Secretary of, Sir Wm Bennett Lond Brighton Corporation Publicity Department Director of Birkenhead Guardians Clerk to the Blacks Advertising Agency, Lond. Mr E J Burdon Lond Dr W Langdon Brown Lond Dr A. G Bateman Lond. Mr Sidney Barwise Derby Dr Dudley Buxton Lond.; Mrs Bellby Bromsgrove Dr G Burton Brown Sidmouth Sir John Byers Belfast Bristol Dental Association Lond Secretary of Staff Surgeon S Bradbury R N Lond. Boston (U S A.) Medical Library Assistant Librarian of Mr Wm Bryce Edinburgh

C.—Dr S C Clapham Martock Captain W T Chaning Pearce R.A.M C Lieutenant A Chand I M S Captain R A.M.C S R. Dr J R T Conner Lond Mr H J Clague Long Itchington Messrs J and A Churchill Lond. Miss W Clifford Lond Church Army Lond Secretary of Dr Celotto Naples Dr J C Connell Kingston Ontario Messrs E Cook and Co Lond Mr N Carson Oldham Caterham Sanitarium Medical Superintendent of Children's Country Holiday Fund Lond. Chairman of Sir William Collins Lond Surgeon Hildred Carlill R N Mr Theodore L Clemens Tobago Dr F G Clemow Lond. Miss Grace Campling Bexley Mr G Herbert Colt Aberdeen

D.—Mrs E A. Dennys, Lond Dr A F Dixon Dublin Messrs W Dawson and Sons Lond Messrs Dale Reynolds and Co Lond. *The Dental Record* Lond Publishers of Dr Carlos Duran San José Derbyshire County Council Derby Medical Officer of Health of Messrs J Dickinson and Co Lond

E.—Mr Arthur Edgelow Heward Saskatchewan Captain T P Edwards R.A M C (T F) Mr W M Egglestone Stanhope.

F.—Messrs Fletcher Fletcher and Co Lond; Dr George Foy Dublin Factories Chief Inspector of Lond

G.—Mrs M Green Huntingdon Mr E W Hey Groves Clifton; Dr Norman Gray, Newmarket Dr E S Glover Cheltenham; General Education Board New York Dr S Goto, Lond Mrs M Grieve Chalfont St Peter

H.—Mr P J Hamfel New York; Messrs W and R Holmes Glasgow Major L T Rose Hutchinson I M S Captain W J Harris R.A.M C Mr J H Haverson, Carman Manitoba Messrs A Heywood and Son, Manchester; Mr R Hitchins Lond Major Arthur F Hertz R.A.M C; Mr John Hickman Lond; Mr Charles J Heath Lond; Dr John Haddon Denholm Lady Horsley Lond.

I.—Captain Maurice Irvine I M S Incorporated Society of Trained Masseuses Lond., Secretary of

J.—Dr A. J Jex Blake Lond Dr B Jones Bournemouth

K.—Miss A Keilin Cambridge Dr A Beresford Kingsford Lond. Dr Emmanuel Kondoleon Athens

L.—Mr G A Lovett Harrow Messrs H K. Lewis and Co Lond; Dr G C Low Lond Messrs Lever Bros Port Sunlight Dr A S Leyton Leeds; Local Government Board Lond Corporation of London Town Clerk of

M.—Dr J L Martin Chelmsford Dr D D Malpas Boscombe Captain A N Meehan A A.M C Manchester Hospital for Consumption Secretary of Messrs C Mitchell and Co Lond. Dr J N Matthews Whitworth Messrs McCaw Stevenson and Orr Belfast Manchester Clerical &c. Association Messrs Macmillan and Co Lond Mrs A McCarthy Lincoln Maltine Manufacturing Co Lond Miss Ida Meller Lond Mr A Maloine, Paris Dr W Makeig Jones Torquay Mr J A Manton Sheffield Mr R H McCoy Lond.; Messrs Mayer and Meltzer Lond; Mr J E R McDonagh Lond Metropolitan Hospital Sunday Fund Secretary of

N.—Mr F Newbery Edinburgh Mr Cyril A. R Nitch Lond; Dr Sherali K Nanjiani Chhota Udepur Dr Norton Folkestone City of New York Department of Health Captain Herbert J Norman R.A.M C National Medical Union Lond Hon Treasurer of

O.—Dr Matthew D O'Connell Lond Dr C O'Gorman Tintagel

P.—Mr W H Plows Lake Isle of Wight Dr J M Pollard Zungeru N Nigeria Lieutenant H W Paddell R A M C

R.—Mr G W Rundle Lond Royal Hampshire County Hospital Winchester Secretary of Mr C Robertson Barrow in Furness Mr G B Roberts Lond Professor James Ritchie Edinburgh Lieutenant Colonel Sir Leonard Rogers I M S; Mr Lawrence J Rhea

S.—Mr W H Slater Lond St Thomas's Hospital Medical School Lond Secretary of School of Physic Trinity College Dublin Registrar of Dr Charles Slater Lond Sunderland Royal Infirmary Secretary of; Secretary of State for India Lond Messrs Smith Elder and Co Lond Dr G Arbour Stephens Swansea Sheffield Royal Hospital Secretary of Mr A Marmaduke Sheild Lond. Professor Wm Stirling Manchester Messrs J P Segg and Co Lond School Dentists Society Lond Secretary of Mr Sydney Stephenson Lond The Sterling Corporation Lond

T.—Messrs Raphael Tuck and Sons Lond Mr J Tain Edinburgh Major E N Thornton R.A.M C Tunbridge Wells General Hospital Secretary of

U.—University College Dublin President of; University College Lond Secretary of Mr Arthur S Underwood Lond Mr T Unwin Lond

V.—Mr O H Vevers Sao Verkehrsverein Davos

W.—Captain Wyndham Williams R.A M C Dr J F Wickes Henley on Thames Messrs J Williams and Son Bradford Messrs A J Wright Lond Messrs W Wedfield and Co Lond. Messrs W Wood and Co New York Mr Robert Whitelaw Aberdeen Captain T A Wilson R.A.M C Messrs J Wright and Sons Bristol Westminster Hospital Postgraduate College Dean of Dr Charles Powell White Manchester D J A Wilson Warrington Dr S A A Wilson Lond Mr S A Williamson Lond

Letters, each with enclosure, are also acknowledged from—

A.—Miss Archer Jones Liverpool; Mrs Aldous Brenchley Messrs R Anderson and Co Lond Army and Navy Male Nurses Co-operation Lond A Seaford A T G, Sister Adelaide Nottingham A. J R

B.—Mrs Barnes Chippenham; Messrs Berryman and Sons Lond. Dr McL Bainbridge Makerstown Burton-on-Trent Corporation Treasurer of Mr E Bigg Blagdon

C.—Miss B Collins Torquay Child Welfare Inquiry Office Lond Secretary of Captain R Carswell R A M C (T) College of Preceptors Lond., Secretary of Messrs T Christy and Co Lond

D.—Mr T Dow Newbiggin by Sea

E.—E A Myddelton square

F.—Mr C Fox Lond Dr C E Finlay Havana

G.—Dr F W Gange Faversham Grimsby and District Hospital Secretary of Mr J H Gibson Kirkby Stephen; Dr D K D Gozdar Calcutta.

H.—Dr H Harwood Yarrel High Wycombe Messrs W and R Holmes Glasgow; Lieutenant E W N Hobhouse R A M C Messrs J Hadden and Co Lond. H P M

I.—The I L High Class Cigarette Manufacturing Co Lond Dr P R Ingram Lond

J.—Jessop Hospital for Women Sheffield Secretary of J L M Dr J Waldron Johnston Fleetwood

K.—Lieutenant A M Kennedy R.A.M C Miss A D Kerr Cairo Mrs R. Kelly Tipperary Dr W V Kane Juliulpore

L.—Messrs Leslie Lond Limited India Chief Medical Officer of *Lincolnshire Chronicle* Lincoln Manager of Lyell Ltd Lond Mr H D Lauchlan Lond. L J

M.—Dr F J Mallen Malvern Link Miss Mackay Montreal Messrs Matthews Bros Lond Messrs J Menzies and Co Glasgow Mrs Michell Neath

N.—Surgeon R P Nimmo R Lond Nurses Temperance Co-operation Lond

O.—Oxford Eye Hospital Secretary of

P.—Messrs F T Pearson and Co Lond Fleet Surgeon I V Pope R N Lond Messrs Parke Davis and Co Lond Mr A H Proctor Lond

R.—Messrs Rowley and Co Lond Royal Victoria Hospital Dover Secretary of Mr S Rangaswamy Aiyangar Dr W S J Jackson Jagdalpur

S.—Mr H B Shepherd Lond Mr J Baker Smith Lond Messrs Sylers and Pond Lond Dr Snell Christchurch

T.—Mr J J Taylor C Messrs Thacker and Co Lond Surgeon T Turner R N V R Mrs Thwaites

V.—Victoria Hospital Burnley Secretary of

W.—Captain A White Cameron Dr J H D Webster Sydney Mr A Wilson Lond Mr Worthington Lond Grout Williams Broad Hinton Mr J Webb Henfield Mrs Webb Rayland Captain W Williams R A M C Mr Hiling C Wakefield Corporation

THE LANCET.

LONDON SATURDAY AUGUST 26 1916

Students' Guide Session 1916-1917

The ranks of the medical students are neces arily sorely depleted, and most of the men who, in he ordinary course, would be entering upon a edical career are studying the laws and facts of ife in the glorious and bitter school of war An ncrease of women students is the notable feature f modern medical education, and for the enthusiasm ith which they have been entering upon hard and oble work we, in common with the whole country, ave great admiration But the increase here, too, as been less marked, as the war progresses The umber of women adherents to our ranks is now ffected by the war in the same way that the umber of medical students has been affected he promise that a useful, responsible, and suc essful career was offered to them in medicine has een perfectly clear to many women for some time, nd in the various centres of secondary education arge groups of women had made up their mind efore the commencement of the war to avail them elves of that promise Many of them now for easons of the purest patriotism, have sacrificed heir ambitions and have decided that the incidence f war has entailed upon them duties of other and very sort to which they must give a preferential laim Large as the number of women students romises to be, there are many women who have lecided that they ought to defer their medical tudies rather than interrupt the immediate work upon which they are engaged It is herefore to a smaller public than ever before hat the Students' Number of The Lancet is irected this year and those who are pursuing heir medical studies need from none any urging o diligence and concentrated effort

In previous issues we have given a full account of the regulations for the entry of candidates for commissions in the Naval Military, and Indian Medical Services with notes on rank, pay, pro motion retirement allowances and pensions The existing circumstances however, make all such information irrelevant The section has therefore been omitted as well as the sections on Special Training in Public Health and in Tropical Medicine The regulations for the obtaining of these supplementary diplomas will be published later A full account is included of the Colonial Medical Service whose activities have not been similarly curtailed

The General Council of Medical Education and Registration conveniently known as the General Medical Council, is the controlling authority under the Privy Council of the medical educa tion of the land Under the provisions of the Medical Acts various universities and corporations are recognised as being examining bodies whose degrees or diplomas entitle to medical registra tion, and it is among the duties of the General Medical Council to keep the official register and to ensure by periodical visitations that the tests of the various examining bodies are maintained at a due standard. We begin in the Students' Guide, which follows, by describing the powers of the General Medical Council, and go on to give in detail the regulations of the examining bodies

The systems under which the medical student obtains instruction do not conform to one pattern The curriculum falls into two parts, the preliminary subjects and the professional subjects, and the two cannot be sharply divided The important pre liminary subjects are chemistry pharmacology, physics, biology, anatomy, and physiology, and they are taught in the school proper, the professional subjects, medicine, surgery, and obstetric medicine —under which headings all forms of specialism are included—must be learned in the wards of a hos pital All schemes of medical education require a school and a hospital, and end in the award to the student of a degree or diploma, but there their uniformity ends

Under their respective headings and subdivisions will be found the chief information concerning the facilities for medical study, and the regulations for examinations at the various teaching centres of the United Kingdom, so that a student desiring to obtain a medical degree at any university will find under one heading an account of the medical faculty of that university, and of the hospitals which form its field for clinical instruction It is impossible to adhere rigidly to this plan without some overlapping and doubling of information for, as is well known, the medical schools of some universities are served chiefly by hospitals in other centres Thus the majority of the medical students of Oxford and Cambridge pursue their clinical studies in London and take the diplomas of the English colleges, whilst any student who has gone through all his statutory training in a provincial centre may sit for a medical degree at the University of London Again when we come to consider the corporations which have the power to grant diplomas qualifying their possessors for the practice of medicine, we find that they usually have no schools attached to them but that they examine students who have gone through the curriculum at any recognised metropolitan or provincial school to the satisfaction of their teachers, and in accordance with the regulations of the corpora tions

The Guide is divided into the three headings of England and Wales Scotland and Ireland, and the medical education in each country is dealt with as a separate entity First the medical faculties of the universities in each country are described, and then follows an account of the medical cor porations having powers to grant diplomas by exa mination. Under the heading of each university we give a general description of its arrangements for conferring medical degrees, of its facilities for pre paring its students for those degrees and particulars of those hospitals affording clinical instruction which are situated in the neighbourhood of the university buildings An account is also given of the regula tions of the various corporations granting diplomas for the practice of medicine and of the system of dental education of the country

GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION OF THE UNITED KINGDOM

POWERS DUTIES, AND CONSTITUTION OF THE GENERAL MEDICAL COUNCIL

THE powers and duties of the General Medical Council or "General Council of Medical Education and Registration of the United Kingdom" to give the Council its full title, have been set out in detail in many previous Students' Numbers of THE LANCET It is first a registering body no person, even though his qualifications have been obtained, is a legally qualified medical practitioner unless his name appears on the Medical Register Secondly, it is a standardising body, ensuring that the education of medical men is kept up to an efficient standard by scientific examination Thirdly, it is a penal and disciplinary body, having power to remove from the Register any practitioner adjudged guilty of conduct "infamous in a professional respect" Fourthly to the Council is committed the codification of pharmaceutical remedies

The duties of the Council are thus primarily of a public nature, and its construction shows its fitness for its fourfold responsibilities

The Council at present consists of 38 members, of whom, as will be seen by the annexed list, all but 11 are official representatives of some corporate body Five members are chosen by the Crown on the advice of the Privy Council, and six others are elected by the members of the medical profession as Direct Representatives

President of the General Council Sir Donald MacAlister, K C B Members of the General Council Dr Norman Moore, chosen by the Royal College of Physicians of London, Sir Henry Morris, Bart, Royal College of Surgeons of England, Mr George Wilks, M B, Apothecaries' Society of London, Mr Arthur Thomson, M B, University of Oxford, Sir T Clifford Allbutt, K C B, University of Cambridge, Sir George Hare Philipson M D, University of Durham, Dr Frederick Taylor, University of London, Dr Grafton Elliot Smith, Victoria University of Manchester, Dr Robert Saundby, University of Birmingham, Dr Richard Caton, University of Liverpool, Dr Alfred George Barrs, University of Leeds, Rutherfoord John Pye Smith, F R C S, University of Sheffield, Sir Isambard Owen, University of Bristol; and Dr David Hepburn, University of Wales Dr William Russell, chosen by the Royal College of Physicians of Edinburgh, Mr James William Beeman Hodsdon, F R C S Edin, Royal College of Surgeons of Edinburgh, David Neilson Knox, M B, Royal Faculty of Physicians and Surgeons of Glasgow, H Harvey Littlejohn, M B, University of Edinburgh, Sir Donald MacAlister K C B, M D, University of Glasgow, Dr John Theodore Cash, University of Aberdeen, and Dr John Yule Mackay, University of St Andrews Sir John William Moore, chosen by the Royal College of Physicians of Ireland, Sir Arthur Gerald Chance, Royal College of Surgeons in Ireland, Dr Edward Magennis Apothecaries' Hall of Ireland, Arthur Francis Dixon, M B D Sc, University of Dublin; Sir Bertram Coghill Alan Windle, M D, National University of Ireland, and Johnson Symington M D, Queen's University of Belfast Nominated by His Majesty, with the advice of his Privy Council Mr Charles Sissmore Tomes F R C S, Dr Arthur Newsholme C B, Sir Francis Henry Champneys Bart, M D, Dr John Christie McVail, and Dr James Little Elected as Direct Representatives Dr Langley Browne, Dr H A Latimer, Dr J A MacDonald Mr Thomas Jenner Verrall, Dr Norman Walker and Dr Leonard Kidd Treasurers of the General Council Mr Charles Sissmore Tomes and Sir Henry Morris Bart.

THE EDUCATIONAL CURRICULUM

Professional Education —The course of professional study after registration occupies at least five years The Final Examination in Medicine Surgery and Midwifery must not be passed before the close of the fifth academic year of medical study

Registration and Preliminary Examination of Medical Students —The following are the General Medical Council's Regulations in reference to the registration of students in medicine —

Every medical student should be registered in the manner prescribed by the General Medical Council The registration of medical students is placed under the charge of the Branch Registrars Every person desirous of being registered as a medical student should apply to the Branch Registrar of the division of the United Kingdom in which he is residing, and should produce or forward to the Branch Registrar a certificate of his having passed a preliminary examination as required by the General Medical Council, and evidence that he has attained the age of 16 years, and has commenced medical study at an institution approved by the Council. The Branch Registrar shall enter the applicant's name and other particulars in the Students Register and shall give him a certificate of such registration Each of the Branch Registrars shall supply to the several licensing bodies, medical schools, and hospitals, in that part of the United Kingdom of which he is registrar, a sufficient number of blank forms of application for the registration of medical students The commencement of the course of professional study recognised by any of the qualifying bodies should not be reckoned as dating earlier than 15 days before the date of registration In addition to the universities and schools of medicine there are many institutions where medical study may be commenced Applications for special exceptions are dealt with by the Students' Registration Committee, which reports all such cases to the Council

The Preliminary Examination in General Education required to be passed previously to registration as a medical student, is as follows —

1 English language including grammar and composition Paraphrasing questions on the history and geography of Great Britain and Ireland 2. Latin including grammar translation from unprescribed Latin books, and translation of English passages into Latin. 3 Mathematics comprising (a) arithmetic (b) algebra including easy quadratic equations, and (c) geometry the subject matter of Euclid Books I II and III with simple deductions 4 One of the following subjects: (a) Greek (b) a modern language

In some cases also the Council will not accept certificates without endorsement that all the required subjects are included For a syllabus or for old examination papers application should be made to the Examining Bodies who can give details as to the requirements in regard to their own examinations

A degree in Arts of any university of the United Kingdom or of the colonies or any other specially recognised university, or a certificate of having passed the final examination for a degree in Arts or Science of any university in the United Kingdom is considered a sufficient testimonial of proficiency

Norman C King Registrar of the General Council and of the Branch Council for England 299 Oxford street London, W —James Robertson, Registrar of the Branch Council for Scotland 54, George square Edinburgh — Richard J E Roe, Registrar of the Branch Council for Ireland, 35, Dawson street, Dublin All communications should be addressed to 'The Registrar' and not by name

THE EXAMINING BODIES

The following is a list of Examining Bodies whose examinations in general education are recognised by the General Medical Council as qualifying for registration as a medical or dental student

In all cases it must be certified that all the required subjects have been passed at not more than two examinations

Universities in the United Kingdom

University of Oxford —[1] Senior Local Examinations (Certificates to be endorsed as fulfilling the Council's requirements) Higher Local Examinations Responsions (Certificate to be supplemented by others showing that the required mathematical subjects have been passed) Moderation

University of Cambridge —[1] Senior Local Examinations (Certificates to be endorsed as fulfilling the Council requirements) Higher Local Examinations Previ Examination General Examination

Oxford and Cambridge Schools Examination Board —[2] Higher Certificate Examination [2] The School (or Leaving Certificate Examination

University of Durham —Matriculation Examination of the Faculties of Medicine Science Letters and Music

University of London — Matriculation Examination Senior School Examination

[1] A special leaflet showing the Council's requirements will be sent on application

[2] For particulars see Regulations issued by the Board

Victoria University of Manchester, University of Liverpool University of Leeds, and University of Sheffield Joint Matriculation Board of—Matriculation Examination Senior School Certificate (to include (*a*) English Language and Literature, (*b*) Latin, (*c*) Mathematics, (*d*) Greek or a Modern Language, and (*e*) and (*f*) any two other subjects as set out in the *Regulations* of the Board).

University of Birmingham—Matriculation Examination Senior School leaving Certificate

University of Bristol—Matriculation Examination School Certificate Examination

University of Wales—Matriculation Examination.

Universities of Scotland—Preliminary Examination of the Joint Board of Examiners of the Scottish Universities for Graduation in Medicine and Surgery Preliminary Examination of the Joint Board of Examiners of the Scottish Universities for Graduation in Arts or Science

University of St Andrews—Final examination for the diploma of L.L.A.

University of Dublin—(*a*) Junior Freshman Term Examination (exclusive of Trigonometry). (*b*) Special Preliminary Examination to be held in March, the standard and subjects of which shall be those of a Junior Freshman Examination (exclusive of Trigonometry) (*c*) Junior Exhibition Examination on obtaining marks of sufficient merit in the subjects of (*a*) or (*b*) (*d*) Examinations for the first second third, or fourth year in Arts. (Certificate to be signed in the approved form by the Medical Registrar of the University)

Queen's University of Belfast—Matriculation Examination.

National University of Ireland—Matriculation Examination

Government Examinations held in the United Kingdom

Scotch Education Department—Leaving Certificate Examinations passes in Lower Grade Leaving Certificate Examinations Intermediate Certificate

Intermediate Education Board of Ireland—Middle Grade Examination with Honours in three subjects Senior Grade Examinations

Central Welsh Board—Senior Certificate Examinations

Examinations by Chartered Bodies held in the United Kingdom

College of Preceptors—Examinations for the Senior Certificate Preliminary Examination for Medical Students

Educational Institute of Scotland.—Preliminary Medical Examination.

Royal Colleges of Physicians and Surgeons in Ireland—Preliminary Examination.

Indian Colonial and Foreign Universities and Colleges

Every Certificate from Indian Colonial and Foreign Universities and Colleges must contain evidence that the Examination has been conducted by or under the authority of the Body granting it must include all the subjects required by the General Medical Council and must state that all the subjects of Examination have been passed in at not more than two examinations, copies of the form of the required Certificate are supplied by the Registrar of the Council for the purpose In the case of Natives of India or other Oriental countries whose vernacular is other than English an Examination in a Classical Oriental Language (e.g Sanskrit Arabic Chinese) may be accepted instead of an Examination in Latin The German Abiturienten Examen of the Gymnasia and Real Schulen and the examinations entitling to the French diplomas of Bachelier ès Lettres and Bachelier ès Sciences and other corresponding Entrance Examinations to the Universities in Europe are recognised by the General Medical Council

The remainder of the curriculum, though all under the supervision of the Council is in detail in the hands of the various degree and diploma granting bodies who are represented on the General Medical Council In the next pages we give the results of the various examining bodies but it must always be borne in mind that the examinations are under the supervision of the General Medical Council who visit the various centres in turn and closely inspect the procedure.

THE MEDICAL EXAMINING BODIES AND SCHOOLS OF THE UNITED KINGDOM

A GUIDE TO THE FACILITIES FOR OBTAINING THE VARIOUS MEDICAL DEGREES AND OTHER QUALIFICATIONS FOR THE BRITISH MEDICAL REGISTER.

I.—ENGLAND AND WALES

THE UNIVERSITIES

UNIVERSITY OF OXFORD

THERE are two degrees in Medicine, *B.M. and D.M.*, two degrees in Surgery, *B.Ch. and M.Ch.*, and two diplomas, *Public Health* and *Ophthalmology*

Graduates in Arts (B.A. or M.A.) are alone eligible for the degrees. The most convenient course for the B.A. degree for intending graduates in Medicine is to take Responsions, the Preliminary Science Examinations mentioned below, and the Final Honour School of Physiology In order to obtain the degrees of B.M. and B.Ch. the following examinations must be passed—1. Preliminary subjects Mechanics and Physics, Chemistry, Animal Morphology, and Botany 2 Professional (*a*) First Examination Subjects—Organic Chemistry, unless the candidate has obtained a first or second class in Chemistry in the Natural Science School, Human Physiology, unless he has obtained a first or second class in Animal Physiology in the Natural Science School, Human Anatomy (*b*) Second Examination Subjects—Medicine, Surgery, Midwifery, Pathology, Forensic Medicine with Hygiene Materia Medica and Pharmacology The approximate dates of the examinations are as follows—Preliminaries—Mechanics Physics, and Chemistry, December and June, Animal Morphology, December and March, Botany, March and June, Professional (First and Second B.M.) June and December

The First Examination for the degrees of B.M. and B.Ch. may be passed as soon as the Preliminary Scientific Examinations have been completed. Anatomy and Physiology are to be passed together, and Organic Chemistry may be taken before or after these have been passed

The Second Examination may be passed after the completion of the first, but Pathology Hygiene and Materia Medica and Pharmacology may be taken before or with the remaining subjects Before admission to the Second Examination candidates must present certificates of attendance on a course of laboratory instruction in Practical Pathology and Bacteriology and of having acted as post-mortem clerk for three months, surgical dresser for six months, and clinical clerk for six months Also they must produce certificates of instruction in Infectious and Mental Diseases, and of attendance on Labours of proficiency in the practice of Vaccination and Anæsthetics and of having attended a course of Practical Pharmacology Also in respect of the First Examination candidates must present certificates showing that they have dissected the whole body once and have attended courses of laboratory instruction in Practical Histology and Practical Physiology

The degree of D.M. is granted to Bachelors of Medicine of the University provided they have entered their thirty ninth term and have composed on some medical subject a dissertation which is approved by the professors in the Faculty of Medicine and examiners for the degree of B.M. whose subject is dealt with A book published within two years of the candidate's application for the degree may be substituted for a dissertation The Regius Professor may direct the dissertation to be read in public. The degree of M.Ch. is granted to Bachelors of Surgery of the University who have entered their twenty seventh term who are members of the surgical staff of a recognised hospital or have acted as Dresser or House Surgeon in such a hospital for six months, and who have passed the M.Ch. examination in Surgery, Surgical Anatomy and Surgical Operations This examination is held annually in June at the end of the Second B.M. Examination

Diploma in Ophthalmology—There is an examination once in each year in the Theory and Practice of Ophthalmology for the purpose of granting certificates of proficiency therein,

styled Diplomas in Ophthalmology The examination is under the supervision of the Board of the Faculty of Medicine, which has power to make regulations as to the subjects of the examination, the time at which the examination is held, and the conditions of admission No candidate is admitted to the examination for the diploma who has not pursued at Oxford a course of study in Ophthalmology approved by the Board of the Faculty of Medicine, and extending over a period of at least three months The fee for admission to the examination is £15 unless the candidate is a graduate of the University, in which case it is £10 only

Travelling Fellowship, Scholarships, and Prizes —A Radcliffe Travelling Fellowship is awarded annually after an examination held in February It is tenable for three years and is of the annual value of £200 The examination is in Physiology, Pathology, and Hygiene, and is partly "practical" Candidates must be graduates in Medicine of the University The holder must travel abroad for the purpose of medical study Application should be made to the Radcliffe Examiners, Radcliffe Library, University Museum A Rolleston Memorial Prize is awarded once in two years to members of the Universities of Oxford and Cambridge of not more than ten years' standing for an original research in some Biological subject, including Physiology or Pathology The Radcliffe Prize, founded by University College (1907), is of the value of £50 and is awarded biennially for research in some branch of medical science The Theodore Williams Scholarships of the value of £50 each are awarded annually in the subjects of Anatomy, Physiology, and Pathology A King's College Hospital Burney Yeo Scholarship of £80 is awarded each year The Scholarships in Science which are offered by several Colleges are open to those who intend to pursue Medicine. The value of these scholarships is usually £80 a year for four years

More detailed information may be obtained from the University Calendar, from the Examination Statutes, 1915, from the Student's Handbook to the University (all of which are published by the Clarendon Press), from the Regius Professor of Medicine, and from the Professors in the several departments of medical science.

Professors — Botany (Sherard) S H Vines, M A Chemistry (Waynflete) W H Perkin, D Sc Comparative Anatomy (Linacre) G C Bourne, D Sc Human Anatomy A. Thomson, M A Lecturer in Applied Anatomy A. P Dodds-Parker, B M Medicine (Regius) Sir W Osler, Bart, D M Litchfield Lecturer Ernest Mallam, M D Surgery, Litchfield Lecturer E C Bevers, B M Natural Philosophy (Sedleian) A E H Love D Sc. Physics (Wykeham) J S E Townsend, M A Physiology (Waynflete) C S Sherrington M D Zoology E B Poulton, D Sc Pathology G Dreyer, M D Lecturer E W A Walker D M Morbid Anatomy A G Gibson, D M Pharmacology (Reader) James Gunn M D

In addition to the University lectures and classes the several Colleges provide their undergraduates with tuition for all examinations up to the B A. degree

In the Radcliffe Infirmary and County Hospital clinical instruction is given by the Regius Professor of Medicine the Litchfield Lecturers in Medicine and Surgery, and the other physicians and surgeons Instruction is also given in post-mortem work and Clinical Pathology in connexion with the courses in Pathology

UNIVERSITY OF OXFORD RADCLIFFE INFIRMARY AND COUNTY HOSPITAL —Courses of instruction are given in connexion with the Oxford University Medical School These include (1) a course in Practical Medicine by the Regius Professor of Medicine, (2) Clinical lectures by the Litchfield Lecturers in Medicine and Surgery, and (3) tutorial instruction and demonstrations in special Regional Anatomy (medical and surgical) methods of Medical and Surgical Diagnosis, and Surgical Manipulation (4) Pathological demonstrations and instruction in post-mortem work are given by the Assistant Pathologist Practical Pharmacy is taught in the Radcliffe Dispensary Opportunities are offered to students who wish to act as surgical dressers and clerks The Hospital contains 170 beds Honorary Physician Dr E B Gray Honorary Surgeons Mr A Winkfield and Mr H P Symonds Active Consulting Physician Professor Sir William Osler Bart. Active Staff —Honorary Physicians Dr W Tyrrell Brooks Dr W Collier and Dr E Mallam Honorary Assistant Physician and Medical Registrar Dr A Waters Electro-Therapeutic Physician Dr W J Turrell Honorary Surgeons R H A Whitelocke, Mr A P Dodds Parker, and Mr E C Bevers Honorary Assistant Surgeon and Surgical Registrar (Vacant) Consulting Ophthalmic Surgeon Mr P E R Adams Honorary Consulting Pathologist Professor George Dreyer Honorary Assistant Pathologist Dr A G Gibson Consulting Dental Surgeon Mr E A. Bevers Honorary Radiographer Mr R H Sankey House Physician Dr F Mosse House Surgeon Mr D McDonald. Casualty House Surgeon (Vacant)

UNIVERSITY OF CAMBRIDGE

The student must enter at one of the Colleges, or as a non collegiate student, and keep nine terms (three years) by residence in the University He must pass the Previous Examination in Classics, Mathematics &c., if possible, before he comes into residence in October, or he may obtain exemption through the Oxford and Cambridge Schools Examination Board, the Oxford or Cambridge Senior Local Examinations, the London Matriculation Examination, the Scotch Education Department, Responsions at Oxford, and the Joint Matriculation Board of the Universities of Manchester, Liverpool, Leeds and Sheffield the Matriculation Examination of the University of Birmingham, or by being graduates of certain other Universities in the United Kingdom He may then devote himself to medical study in the University, dissecting, attending the hospital and the medical lectures, &c Or he may, as nearly all students now do, proceed to take a degree in Arts by passing either (*a*) the General Examination and one Special Examination or (*b*) two Special Examinations for the ordinary B A degree, or going out in one of the Honour Triposes The Natural Sciences Tripos is taken most frequently, as some of the subjects are practically the same as those for the first and second M B

For the degree of *Bachelor of Medicine* (*M B*) five years of medical study are required either in Cambridge or at one of the recognised Schools of Medicine The first three or four years are usually spent in Cambridge, the student remaining in the University till he has passed say, the examination for Part I of the Natural Sciences Tripos and the first and second examinations for M B Hospital practice and many of the requisite lectures may be attended in Cambridge, and a certain number of students remain to attend lectures and hospital practice until they have passed the second part of the second examination for M B The laboratories for Botany, Chemistry, Physics Biology, Zoology, Human Anatomy Physiology Biochemistry Pathology, Bacteriology, Pharmacology, Psychology, and Public Health are well equipped Addenbrooke's Hospital the Infectious Diseases Hospital, the Cambridge Research Hospital and the Field Laboratories are utilised for study and research

There are three examinations for M B The *first* includes (1) Chemistry and other branches of Physics and (2) Elementary Biology These parts may be taken together or separately The *second* is divided into two parts—viz, (1) Human Anatomy and Physiology, and (2) Pharmacology and General Pathology The *third* is also divided into two parts (1) Principles and Practice of Surgery (including Special Pathology and Midwifery and Diseases Peculiar to Women), and (2) Principles and Practice of Physic (including Diseases of Children Mental Diseases, Medical Jurisprudence) Pathology (including Hygiene and Preventive Medicine) and Pharmacology (including Therapeutics and Toxicology) The examinations are partly in writing, partly oral and partly practical in the hospital, in the dissecting room and in the laboratories An Act has then to be kept in the Public Schools by the candidate reading an original dissertation composed by himself and being examined orally on some subject approved by the Regius Professor of Physic

Candidates who have passed both parts of the third M B examination are admitted to the registrable degree of *Bachelor of Surgery* (*B C*) without separate examination and without keeping an Act

The degree of *Doctor of Medicine* (*M D*) may be taken three years after that of M B or four years after that M A The candidate is required to produce certificates of having been engaged in Medical Study for five years

and if an M A. some certificates of attendance on Lectures and of attendance on Hospital Practice, and to pass the same examinations as are required for the degree of M B An Act has to be kept, consisting of an original Thesis sustained in the Public Schools with *viva voce* examination, and a short extempore essay has to be written on a topic taken from the general subject of his thesis whether it be Physiology Pathology, Pharmacology, the Practice of Medicine, State Medicine, or the History of Medicine.

For the degree of *Master of Surgery* (*M C*) the candidate must have passed all the examinations for B C, or, if he is an M A., have obtained some other registrable qualification in surgery He is required either (1) to pass an examination in Principles and Practice of Surgery, Surgical Anatomy and Surgical Operations, and Pathology, and to write an extempore essay on a Surgical Subject, or (2) to submit to the Medical Board original contributions to the advancement of the Science or Art of Surgery Before he can be admitted to the examination two years at least must have elapsed from the time when he completed all required for the degree of B C Before submitting original contributions he must have been qualified at least three years

An abstract of the Regulations and Schedules of the range of the examinations in Chemistry Physics Biology, Pharmacology and General Pathology may be obtained upon sending a stamped directed envelope to the Registrary, the Registry Cambridge

The Professors Readers and Lecturers in the various subjects are as follows Professors—Anatomy A Macalister, M.D Biology (Quick) G H F Nuttall Sc.D Botany A C Seward, M A Chemistry W J Pope M A Natural Philosophy (Jacksonian) Sir James Dewar, M A. Pathology G Sims Woodhead M A. Physic (Regius) Sir T Clifford Allbutt M D Physiology J N Langley, Sc.D Surgery (Vacant) Therapeutics (Downing Professor of Medicine) J B Bradbury M D Zoology &c J Stanley Gardiner M A Readers—Botany F F Blackman, M A Chemical Physiology F G Hopkins M A. Zoology A. E Shipley Sc D Lecturers—Bacteriology Louis Cobbett M D Hygiene G S Graham Smith M D Botany A. G Tansley, M A, and R P Gregory M A. Chemistry H. J H Fenton Sc D Organic Chemistry S Ruhemann M A. Chemistry and Physics as Applied to Hygiene J E Purvis M A. Advanced Morphology of Vertebrates H. Gadow, M A. Pathology (Huddersfield) T S P Strangeways M A. Physics G F C Searle Sc.D and C T R Wilson, M A Pharmacology W E Dixon M A Advanced Physiology L E Shore M D Physiology W B Hardy M A. Neurology H K Anderson M D Physiology of the Senses W H R Rivers M A. Experimental Psychology C S Myers M D Sc D Physical Anthropology W L H Duckworth M D Sc D

University Prize in Medicine—The one University Prize in Medicine the Raymond Horton Smith Prize (value £19) is awarded to that candidate for the degree of M D who presents the best thesis for the degree during the academical year provided that he has taken honours in a tripos examination Medical Studies are endowed by the numerous Natural Science scholarships at the various colleges information about which can be obtained from the respective Tutors

---

ADDENBROOKE'S HOSPITAL.—Clinical Lectures in Medicine and Surgery in connexion with Cambridge University Medical School are given at this hospital twice a week during the academical year and practical instruction in Medicine and Surgery is given in the wards and out patients rooms by the physicians and surgeons daily during the term time and vacation The fee for pupil hip is 3 guineas a term Physicians Professor Sir Clifford Allbutt Professor Bradbury D I Humphry Dr Lloyd Jones and Dr Aldren Wright Surgeons Mr G E Wherry Mr F Dalton Dr Griffiths and Mr Arthur Cooke All communications should be made to Dr Aldren Wright

---

UNIVERSITY OF LONDON

The University of London was established by Royal Charter in 1836 as an examining and degree conferring body [illegible] colleges [illegible] teaching faculties In 1900 [illegible] the Act of Parliament 1898 and became a teaching as well as an examining body Many schools already existing became constituent colleges, including all the metropolitan medical schools Teachers were also appointed in special subjects to give lectures at the University

Teaching Staff—The teaching staff of the University is organised under two heads 1. Appointed teachers—i.e., such as are appointed by and are paid out of the funds of, the University 2. Recognised teachers—i.e, those who have been appointed and are paid by the several schools of the University and other institutions at which instruction is given under the auspices of the University, and who have been recognised by the Senate as conducting work of University standard Courses by non recognised teachers may also be approved in schools of the University The lecturers in the Medical Sciences and the professors in the Faculties of Medicine in University College, London, and King's College, London will be found enumerated under their respective medical schools

Internal and External Students—All the examinations of this University are open to men and women alike Matriculated students of the University may be either internal or external Internal students of the University are students who have matriculated at the University and who are pursuing a course of study approved by the University either (*a*) under the direct control of the University or a committee appointed thereby, or (*b*) under one or more of the appointed or recognised teachers of the University Centres for preliminary and intermediate medical studies have been established by the University at University and King's Colleges Internal students must pursue their studies at one of the above centres or at one of the medical schools connected with the University These are University College Hospital, King's College Hospital, St Bartholomew's Hospital, the London Hospital Guy's Hospital St Thomas's Hospital, St George's Hospital the Middlesex Hospital, St Mary's Hospital Charing Cross Hospital Westminster Hospital, and the London (Royal Free Hospital) School of Medicine for Women. The London School of Tropical Medicine and the Lister Institute of Preventive Medicine are also recognised as schools of the University in special departments External students are all other matriculated students and may pursue their studies at other universities and medical schools presenting themselves for examination at the University of London

Faculty of Medicine—The Faculty of Medicine grants the joint degrees of M B B S (*Bachelor of Medicine and Surgery*) and the higher separate degrees of M D (*Doctor of Medicine*) and M S (*Master of Surgery*).

The curriculum for the medical degrees is now five and a half years from the time of matriculation except in the case of students who have passed the Preliminary Scientific Examination or the First Examination for Medical Degrees before July 1910 and the examinations formerly known as the Preliminary Scientific, the Intermediate, and the Final Examination in Medicine are now respectively entitled the First Second and Third Examinations for Medical Degrees Part II of the former Preliminary Scientific Examination has now been made Part I of the Second Examination

A. *Internal Students*—In order to be admitted to the Bachelor's degrees a student must normally after registration as an internal student, have (1) Attended prescribed courses of study for five and a half years in one or more schools of the University (2) Passed the following examinations under the conditions mentioned below (*a*) The First Examination for Medical Degrees in Inorganic Chemistry Physics and General Biology, (*b*) the Second Examination for Medical Degrees Part I, Organic and Applied Chemistry, Part II, Anatomy Physiology and Pharmacology, including Pharmacy and Materia Medica, (*c*) the Third Examination for Medical Degrees or M B, B S Examination in Medicine including Therapeutics and Mental Diseases Surgery Midwifery and Diseases of Women Pathology, Forensic Medicine and Hygiene.

B *External Students*—To be admitted to the Bachelor's degrees an external student must (1) have passed the Matriculation examination or have been exempted therefrom under Statute 116 not less than five and a half years previously (2) have passed subsequent examinations similar to those required of an internal student, and (3) have been engaged in professional studies during the five and a half

years subsequently to Matriculation and four and a half years subsequently to passing the First Examination for Professional Degrees at one or more of the medical institutions or schools recognised by this University for the purpose, one year at least of the four and a half years to have been spent in one or more of the recognised institutions or schools in the United Kingdom

The First Examination for Medical Degrees (Inorganic Chemistry, Physics, and General Biology) will take place twice in each year, commencing on the Monday following Dec 10th and on the second Monday in July It must as a rule be passed by internal students not less than one academic year after matriculation and by external students not less than nine months after matriculation

The Second Examination for Medical Degrees (Part I) Organic Chemistry —This examination will take place twice in each year, commencing on the Thursdays following the third Monday in March and the second Monday in July No candidate will be admitted to this examination within six months of having passed the First Examination [During the continuance of the war only this examination will be held in December as well as in March and July]

The Second Examination for Medical Degrees (Part II) takes place twice in every year, commencing on the third Monday in March and on the first Monday in July The subjects of the examination are Human Anatomy and Embryology, Physiology, and Pharmacology, including Pharmacy and Materia Medica. No candidate shall be admitted to the examination unless he has passed the First Examination for Medical Degrees at least 18 months previously, and has passed Part I of the Second Examination for Medical Degrees

The Third or M B , B S Examination —The M B , B S examination takes place twice in each year, commencing on the fourth Monday in October and on the first Monday in May No candidate except those who pass the Preliminary Science or First Examination for Medical Degrees before July will be admitted to this examination within three academic years from the date of passing in Anatomy and Physiology at the Second Examination (Part II), nor unless he has completed that examination together with prescribed courses of study or practice summarised below (1) Principles and Practice of Medicine , (2) Clinical Methods and Physical Diagnosis , (3) Insanity (with clinical demonstrations at a recognised Asylum) , (4) Therapeutics , (5) Vaccination , (6) Principles and Practice of Surgery , (7) Operative Surgery, Surgical Anatomy, Practical Surgery, and the Administration of Anæsthetics , (8) Diseases of the Eye Ear and Throat , (9) Lectures and Demonstrations on Midwifery and Diseases of Women , (10) Practical Midwifery, the conduct of at least 20 Labours, and practice as a Clinical clerk in Gynæcological work , (11) Pathology and Bacteriology , (12) work of the Post-mortem room , (13) Forensic Medicine , and (14) Hygiene He must also have attended the Medical and Surgical practice of a recognised hospital for two years and a course of instruction at a recognised Fever Hospital for two months [1] He must have had clinical instruction and must have held the posts of medical clinical clerk and surgical dresser for periods of six months each Candidates will be examined in Medicine (including Therapeutics and Mental Diseases), Pathology, Forensic Medicine and Hygiene, Surgery, Midwifery, and Diseases of Women The subjects may be divided into two groups—namely (1) Medicine, Pathology, Forensic Medicine and Hygiene , and (2) Surgery, Midwifery, and Diseases of Women These groups may be taken either separately or together The list of candidates who have passed will be published in two parts—namely, an Honours list and a Pass list. Bachelors of Medicine of this University who graduated in or before May, 1904, may obtain the B S degree by passing the Surgical part of the M B , B S examination

Doctor of Medicine —The examination for this degree takes place twice in each year commencing on the first Monday in December and on the first Monday in July Candidates may present themselves for examination in one of the following branches, namely (1) Medicine, (2) Pathology , (3) Mental Diseases , (4) Midwifery and Diseases of Women , (5) State Medicine, and (6) Tropical Medicine Any candidate for the degree of M D may transmit to the Registrar a thesis or published work having definite relation to the branch of Medicine in which he is a candidate, and if the thesis be approved by the examiners the candidate may be exempted from the written examination in that subject

Master in Surgery —The examination for the degree of Master in Surgery takes place twice in each year and commences on the first Monday in December and on the first Monday in July

Fees —Matriculation £2, which will be returned if the candidate withdraws his name before the last day of entry Should he fail to present himself an additional £1 will be charged on subsequent presentation within eight months £2 will be charged on each subsequent entry At provincial examinations an additional fee of £1 to £3 is charged by the local authorities at the time of examination First M B B S Examination £5 for each entry to the entire examination or £2 each subject if the examination is taken in parts Second M B , B S Examination Part I £2 repeated on each subsequent entry, Part II £8 for the whole examination For re-examination in one subject £4 Third (Final) M B , B S Examination £10 for each entry to the whole examination and £5 for examination or re examination in each group M D Examination £20 , for re examination £10 M S Examination As for M D

Full details of the prescribed curricula of study and the names of the recognised Internal and External Schools of the University, can be obtained free on application to the Academic Registrar, University of London, South Kensington, S W

[1] During the continuance of the war students who have not passed the Second Examination for Medical Degrees in Anatomy and Physiology but who have completed one year's study after passing the First Examination for Medical Degrees will be allowed to count not more than six months service as clinical clerk or not more than six months service as surgical dresser in a recognised hospital as if they had so passed the examination in question Clinical service during the continuance of the war for any period of not more than twelve months in a medical Unit of the Regular or Territorial Forces or in a hospital or detachment of the Red Cross Society or in any hospital recognised by the military or naval authorities for war purposes will be accepted by the University as equivalent to the medical and surgical practice in a recognised hospital for an equal period and further any portion or the whole of the time so spent will be accepted as equivalent to time spent either as a clinical clerk or as a dresser at the choice of the candidate Clinical service during the continuance of the war, as set forth above will be similarly accepted for a period not exceeding six months from students who have not passed the Second Examination for Medical Degrees in Anatomy and Physiology but who have completed one year of study after passing the First Examination for Medical Degrees, as if they had so passed the examination in question

MEDICAL SCHOOLS OF THE UNIVERSITY OF LONDON [1]

ST BARTHOLOMEW'S HOSPITAL AND COLLEGE —The hospital contains 757 beds of which 687 are for patients in the hospital at Smithfield and 70 for convalescent patients at Swanley It receives over 8000 in patients annually and its out-patients and casualties amount to more than 78 000 annually Special departments have been organised for Diseases of Women and Children the Eye Ear, Larynx and Skin as well as for Orthopædic and Dental Surgery and for Electro therapeutics and X Ray work Surgical operations take place every day at 1 30 P M and Surgical Consultations are held on Thursdays at the same hour Medical Consultations are held on Thursdays at 3 15 P M The physicians and surgeons deliver clinical lectures weekly during both the winter and the summer sessions Clinical Lectures on all special subjects are also given The visits of the physicians and surgeons are made at 1 30

Ten house physicians and ten house surgeons are appointed annually, and are provided with rooms by the hospital authorities and receive £80 a year a salary A resident midwifery assistant, an ophthalmic house surgeon and a house surgeon for diseases of the throat nose and ear are appointed every six month and are provided with rooms and receive a salary of £80 a year Three resident anæsthetists are appointed annually, and receive salaries of £120, £100, and £100 respectively with rooms An extern midwifery assistant is appointed every three months and receives a salary of £60 a year The clinical clerks the obstetric clerks the clerks to the medical out patients the dressers to the surgical in patients and to the out-patients, and the dressers in the special departments are chosen from the students A resident [illegible] is attached to the hospital

[1] For Ancillary Metropolitan Medical School see p [illegible]

New Buildings—The new buildings comprise residential quarters for the resident staff, casualty, medical, surgical, and special out patient departments, casualty wards, dispensary and clinical lecture theatre A new chemical laboratory has been added to the Medical School and a laboratory devoted to instruction in Public Health A second new block is devoted to Pathology, and contains the post mortem room as well as extensive laboratories for bacteriology clinical pathology pathological histology, and pathological chemistry *The Medical School Buildings* include three large lecture theatres, a large dissecting room, a spacious library (containing 13,000 volumes), a well appointed museum of anatomy, physiology, comparative anatomy materia medica, botany, and pathological anatomy The pathological museum is the most complete in the kingdom There are laboratories for chemistry, physiology, pharmacology physics, public health, and biology, giving ample accommodation in every department

Special Classes for the Primary and Final F R C S are held twice yearly *Instruction in Preliminary Science* is given to University of London students in chemistry, biology, and physics throughout the year *Laboratory Instruction for the D P H* is provided during the winter and summer sessions

The recreation ground of 10 acres is at Winchmore Hill for the use of the members of the Students Union, which all students are expected to join The Students Union contains a large reading and smoking room, a committee and writing room, luncheon and dining hall, and a miniature rifle range

Staff—*Consulting Physicians* Sir William Church, Dr Hensley Sir Lauder Brunton, F R S, Sir Dyce Duckworth Dr N Moore, Dr S West and Dr Ormerod Consulting Physician Accoucheur Sir Francis Champneys Consulting Surgeon Mr H Cripps Consulting Aural Surgeon Mr Cumberbatch Physicians Sir Wilmot Herringham Dr Tooth, Dr Garrod F R S Dr Calvert and Dr H M Fletcher Surgeons Sir Anthony Bowlby, Mr D Arcy Power, Mr Waring Mr McA Eccles, and Mr Bailey Physicians with charge of Out patients Dr Drysdale and Dr Hartley Assistant Physicians Dr Horder Dr Langdon Brown and Dr Thursfield Surgeons with charge of Out patients Mr Rawling Mr Gask and Mr G Watson Assistant Surgeons Mr H W Wilson, and Mr W G Ball Physician Accoucheur Dr Griffith Physician Accoucheur with charge of Out-patients Dr Williamson Assistant Physician Accoucheur Dr Barris Ophthalmic Surgeons Mr Jessop and Mr Holmes Spicer Surgeon for Diseases of the Throat and Nose Mr Harmer Assistant Surgeon for Diseases of the Throat and Nose Mr Rose Aural Surgeon Mr C E West Assistant Aural Surgeon Mr S R Scott Dental Surgeons Mr Ackland and Dr Austen Assistant Dental Surgeons Mr F Coleman and Mr J G A Fairbank Orthopædic Surgeon Mr Elmslie Physicians for Diseases of Children Dr Fletcher and Dr Thursfield Physician for Diseases of the Skin Dr Adamson Medical Officer in charge of Electrical Department Dr Cumberbatch Medical Officer to the X Ray Department Dr Walsham Pathologist Dr F W Andrewes, F R S Assistant Pathologist Dr Gordon Administrators of Anæsthetics Mr Cross Mr Boyle and Mr Trenby Medical Registrars Dr C M H Howell and Dr Gow Surgical Registrars Mr Blakeway and Mr Roberts Casualty Physicians Dr Feiling and Dr Trevan The staff deliver the lectures and demonstrations in their subjects

Other lecturers and demonstrators are—*Practical Midwifery* Dr M Donaldson *Chemical Pathology* Mr Wallis *Practical Pathology* Dr Stansfeld Mr Nick Dr Canti Mr Davis Dr T H G Shore, and Mr Just *Mental Diseases* Dr Armstrong Jones *Forensic Medicine* Dr R A Lyster *Surgical Anatomy* Dr Macphail *Practical Anatomy* Mr S Manley and Mr Morecson *General Anatomy and Physiology* Dr F A Bainbridge *Practical Physiology* D Trevan *Materia Medica Pharmacology and Therapeutics* Dr Hamill *Biology* Dr Shore and Dr Carrington *Chemistry* Dr Hartley *Practical Chemistry* D Hurley and Mr Cahen *Physics* Mr Womack *Practical Physics* Mr Womack and Mr Hopwood *Public Health* D Lyster *Museum Curator* Dr Andrewes *Junior Curator* Mr Armstrong *Dean of the Medical School* Dr Shore *Warden of the College* Mr W G Ball

Scholarships given in aid of Medical Study—At this school various Scholarships, prizes, &c, are given For five of the Scholarships and the Exhibition—namely, (*a*), (*b*), (*c*), three Entrance Scholarships of the respective values of £75, £75, and £150, (*d*) Entrance Scholarship in Arts, £100, (*e*) Jeaffreson Exhibition £50, and (*f*) Shuter Scholarship, £50—a full or University course at St Bartholomew's Hospital is required The awards of (*a*), (*b*), and (*c*) are made after examination in selections from the subjects of Chemistry, Physics, Zoology, Botany, Physiology, and Anatomy, (*d*) and (*e*) are awarded after examination in Latin, Mathematics, and Greek or French or German, (*f*) is awarded after competitive examination among Cambridge Graduates in Anatomy and Physiology These remaining Scholarships and prizes are as follows—Four Junior Scholarships (*g*) No 1, £30, Anatomy and Physiology, (*h*) No 2, £20, Anatomy and Physiology, (*i*) No 3 £25, Chemistry, Physics, and Biology, (*j*) No 4, £15, Chemistry, Physics, and Biology, (*k*) Senior Scholarship £50, Anatomy, Physiology, and Chemistry, (*l*) Kirkes Scholarship, £30 and medal, Clinical Medicine, (*m*) and (*n*) two Brackenbury Scholarships, £39 each, one in Medicine and one in Surgery, (*o*) Sir G Burrows Prize £10, Pathology, (*p*) Skynner Prize, 13 guineas, Regional and Morbid Anatomy, (*q*) Matthews Duncan Medal and Prize, £20, Midwifery and Gynæcology, (*r*) Luther Holden Research Scholarship in Surgery awarded by election, £105, and (*s*) Lawrence Research Scholarship and gold medal in Pathology, awarded by election, £115

CHARING CROSS HOSPITAL—The Hospital to which the School is attached, contains 300 beds Over 3000 cases pass through its wards each year and some 24 000 out patients and casualties are treated There are special departments for Mental Diseases, Midwifery, Diseases of Women of Children, of the Skin, Eye, Ear, Throat Nose, and Teeth for Orthopædic Cases X Ray work, and for Electrical Examination and Treatment

Appointments—In the Medical School Demonstratorships and Assistant Demonstratorships are open to students of the School Medical Surgical, and Obstetric Registrars to the Hospital are appointed annually Six House Physicians, six House Surgeons, and two Resident Obstetric Officers are appointed each year after competitive examination

Primary and Intermediate Studies—These are taken in the laboratories of the University of London (King's College), situated within a few minutes walk of the school and hospital

Final Studies—These are taken in the school and hospital, where systematic lectures demonstrations and tutorial classes are arranged to cover all the subjects necessary for qualifying examinations Departments are also available for other final subjects of Bacteriology Clinical Pathology Materia Medica, Toxicology Public Health, and Operative Surgery, and also for Research Work and Post-graduate Work

Public Health Laboratories—The fine laboratories of the School have been taken over by the University of London (King's College) to which a full professorial and teaching staff has been transferred The course of instruction for the Diploma of Public Health is given in these laboratories

The *Museum* contains over 4000 specimens including a notable collection of over 800 gynæcological specimens, "The Cuthbert Lockyer Collection"

Students Club—The social comfort and convenience of students are met by library reading and smoking rooms refreshment-room &c The Club which is under the control of a Committee of Students provides needful athletic recreation and includes the Medical Society

Women Students—The Council of the Hospital has recently decided to throw open the Medical School and Hospital to women students They are received upon the same terms and conditions as men

Fees—An entrance fee of 10 guineas and 8 guineas is payable by full course and final course students respectively and an annual fee of 28 guineas covers all other expenditure, with the exception of 7 guineas for vaccination dispensing, and fever hospital attendance which must be taken outside the hospital Membership of the Students Club is included in these fees

Staff—Consulting Physicians Dr T H Green Dr J Mitchell Bruce and Dr F W Mott Physicians Dr J Galloway Dr W Hunter and Dr W C Bosanquet

Assistant Physicians Dr W J Fenton, Dr D Forsyth, Dr R C Jewesbury, and Dr G Holmes Consulting Obstetric Physicians Dr J W Black and Dr A Routh Consulting Surgeons Mr R Barwell, Mr J A Bloxam, and Mr J H Morgan Surgeons Mr H F Waterhouse, Mr C Gibbs, and Mr H S Clogg Surgeons to Out-patients Mr P L Daniel and Mr W S Fenwick Consulting Dental Surgeon Mr J Fairbank Ophthalmic Surgeon Mr E T Collins Obstetric Physician Dr T W Eden Assistant Obstetric Physician Dr C Lockyer Physician for Diseases of the Skin Dr J M H MacLeod Consulting Physician for Mental Diseases Dr C Mercier Physician for Mental Diseases Dr E D Macnamara Orthopædic Surgeon Mr H A. T Fairbank Nose and Throat and Ear Surgeons Mr E B Waggett and Mr E D Davis Medical Officer Roentgen and Electrical Department Dr W Ironside Bruce Surgeon Dentist Mr J F Colyer Anæsthetists Mr C C Braine, Dr V A L E Corbould, Dr B E Potter, and Mr G R Phillips Curators and Pathologists Dr R C Jewesbury and Dr G Holmes Bacteriologist Dr W W C Topley

The lectures and demonstrations are delivered by the Staff on their respective subjects Other lecturers and demonstrators are —Tropical Diseases Sir Patrick Manson and Mr J Cantlie Medical Jurisprudence Dr W A Brend Toxicology Dr H F Morley

Further information may be obtained on application to the Dean, Dr W J Fenton, Medical School, Charing Cross Hospital, London, W C

ST GEORGE'S HOSPITAL —This hospital has a service of 436 beds, of which 180 are allotted to surgical, 150 to medical cases, and 100 are at the Convalescent Hospital at Wimbledon One ward is set apart for Diseases Peculiar to Women Children's beds are placed in all the women's wards Two wards are allotted to ophthalmic cases

Entrance Scholarships and Endowed Prizes of a total value of £482 are awarded annually, a detailed list is placed below The entire teaching and laboratories are now devoted to purely clinical subjects and arrangements have been made with the University of London for students who enter during the first, second, or third year of the curriculum as students of St George's to carry out the necessary courses of instruction at either University College or King's College Students then complete their course, without payment of any entrance fee in a school entirely devoted to Clinical work. The school is admitting a strictly limited number of women students during the war These women students will be allowed to continue their studies until qualification

Eight house physicians and eight house surgeons are appointed annually All house appointments are open without fee to every perpetual student of the hospital and are made strictly in accordance with the merits of the candidates Special attention is directed to the following paid appointments, among others, which are open to students after they have held house office —Medical Registrarship at £200 per annum, Surgical Registrarship at £200, Assistant Curatorship of the Museum at £100, Obstetric Assistantship (Resident) at £50, the post of Resident Anæsthetist at £100, the post of Senior Anæsthetist at £50, the posts (3) of Junior Anæsthetists, each at £30 Great attention is paid by members of the staff to individual teaching A number of special courses are given in which the requirements of university and other examinations receive careful attention The following may be cited as examples —(1) Elementary Bacteriology, (2) Advanced Bacteriology, (3) Clinical Pathology, (4) Systematic Pathology, (5) Histological Pathology and Morbid Anatomy, (6) Pharmacology, (7) Surgical Anatomy, (8) Advanced Anatomy and Physiology, (9) Operative Surgery, (10) Public Health, and (11) Tropical Diseases Special classes are held by members of the staff for all examinations The St. George's Hospital Club with smoking and luncheon rooms on the hospital premises and an athletic ground at Wimbledon, is an amalgamation of the Hunterian Society the Gazette and the chess lawn tennis, boxing, hockey rifle and golf clubs Students have the advantage of a library of medical and scientific books which is kept up-to-date A register of accredited apartments and a list of medical men and others willing to receive St George's men as boarders may be seen on application to the Dean Further information may be obtained from the Dean of the Medical School

Staff —Consulting Physicians Dr T T Whipham, Isambard Owen, and Dr W Ewart Consulting Surgeons Mr Pick, Mr Haward, Sir W Bennett, Mr Marmaduke Sheild, and Mr F Jaffrey Consulting Obstetric Physicians Dr W R Dakin Consulting Ophthalmic Surgeons Mr Brudenell Carter and Mr Adams Frost. Consulting Aural Surgeons Sir William Dalby and Mr W C Bull Consulting Dental Surgeon Mr Winterbottom Consulting Bacteriologist Dr Charles Slater Physicians D H Rolleston, Dr C Ogle, Dr A. Latham, and Dr J S Collis Obstetric Physician Dr A. F Stabb Assistant Physicians Dr A J Jex Blake, Dr Golla, and Dr Torrens Assistant Obstetric Physician Dr Darwall Smith Physician to the Skin Department Dr W S Fox Surgeons Mr G Turner, Mr Pendlebury, Mr T Crisp English, and Mr W F Fedden Ophthalmic Surgeon Mr H B Grimsdale Assistant Ophthalmic Surgeon Mr R R James Assistant Surgeons Mr I Back, Mr C H Frankau and Mr G Ewart Surgeons to the Throat and Ear Department Mr H S Barwell and Mr L Colledge Dental Surgeon Mr N G Bennett Assistant Dental Surgeon Mr Morle Bacteriologist Dr H Spitta, M V O

The staff deliver the lectures in the respective subjects assisted by the following lecturers and demonstrators Tropical Medicine Dr C W Daniels Vaccination Mr E Climson Greenwood Mental Diseases Dr Seymour Tuke Public Health Mr C M Fegen Hygiene Dr H Spitta Toxicological Chemistry Mr Gardner Pathological Chemistry Dr Golla. Pathology Dr R S Trevor Bacteriology and Clinical Pathology Dr E L Hunt. Teachers of Anæsthetics Dr Blomfield Assistant Teachers of Anæsthetics Dr Powell, Dr Longhurst and Dr Horn Advanced Physiology and Histology Dr G A Buckmaster Obstetric Tutor Dr D W Roy Medical Tutor Dr H C Sparrow Surgical Tutor Mr W M Oakden Dean of the Medical School and Curator of the Museum Dr I Salusbury Trevor

Scholarships and Prizes —At this school two entrance scholarships are given, the money value and the subjects of examination being as follows (a) and (b) two University Entrance Scholarships, 70 guineas and £[illegible] respectively, Anatomy and Physiology The others are as follows (c) William Brown Exhibition, tenable for two years and open to perpetual pupils having registrable qualifications, £112 per annum, Practice of Medicine, Midwifery, and Surgery, (d) William Brown Exhibition, tenable for three years and open to perpetual pupils qualified not more than three years previously, £[illegible] per annum, Essay and Original Work, (e) Allighan Scholarship in Surgery for Students qualified not more than three years, £50, Competitive Essay, (f) and (g) two Brackenbary Prizes, one in Medicine and one in Surgery £30 each, open to students of not more than five years standing, (h) H C Johnson Memorial Prize £15, Practical Anatomy, (i) Pollock Prize £17 Physiology, Physiological Chemistry, and Histology, (j) Clarke Prize £5, (k) Thompson Medal, £5 Clinical Reports, (l) Brodie Prize £7, Clinical Reports, (m) Webb Prize, open to perpetual pupils, £30 Bacteriology

---

GUY'S HOSPITAL.—This hospital founded by Thomas Guy in 1721 for the reception of 400 patients and enlarged through the aid of a large bequest from the late William Hunt contains at the present time 644 beds The [illegible] buildings have recently been rebuilt and now offer [illegible] complete accommodation Within the grounds of the hospital are situated the residential college with accommodation for 60 students the students' club with reading smoking luncheon and dining rooms a fives court [illegible] swimming bath The athletic ground and club house are situated at Honor Oak Park and can be reached in [illegible] minutes from the hospital

House physicians, house surgeons out patient officers and assistant house surgeons obstetric residents [illegible] thalmic house surgeons clinical assistants [illegible] anæsthetists surgeons and assistant surgeons dressers [illegible] surgical and medical clinical clerks post mortem clerks extern obstetric attendants and dressers and [illegible] in the special departments are appointed from among the students upon the recommendation of the medical council according to merit

Medical and Surgical Staff and Lecturers —Consulting Physicians Dr F Taylor Dr Newton Pitt, and Sir C [illegible]

Perry Consulting Surgeons Mr W H A Jacobson, Mr Golding Bird, Mr C J Symonds, and Sir W Arbuthnot Lane Bart. Consulting Physician for Mental Diseases Sir George Savage Consulting Aural Surgeon Mr W Laidlaw Purves Consulting Physician for Skin Diseases Sir Cooper Perry Consulting Anæsthetists Mr Tom Bird and Dr H F Lancaster Consulting Ophthalmic Surgeons Mr C Higgens and Mr W A Brailey Consulting Dental Surgeons Mr Newland Pedley and Mr W A Maggs Physicians and Assistant Physicians Dr W Hale White Dr L E Shaw, Dr J Fawcett, Dr A. P Beddard, Dr H S French, Dr A F Hertz Dr H C Cameron, Dr G H Hunt, and Dr E P Poulton Surgeons and Assistant Surgeons Mr L A Dunn, Sir Alfred Fripp, C B, K.C V O, Mr F J Steward, Mr C H. Fagge, Mr R P Rowlands, Mr Philip Turner Mr E C Hughes, Mr R Davies-Colley, and Mr L. Bromley Obstetric Physicians Mr G Bellingham Smith and Mr H Chapple Ophthalmic Surgeons Mr H L Eason and Mr A W Ormond. Physician in Charge of Nervous Diseases Dr Hertz. Physician in Charge of Children Dr Cameron Physician in Psychological Medicine Dr Maurice Craig Surgeon in Charge of Genito-Urinary Department Mr A R Thompson Surgeons in Charge of Throat and Ear Department Mr W M Mollison and Mr T B Layton Surgeon in Charge of the Orthopædic Department Mr W H Trethowan Surgeon in Charge of the Actino-Therapeutic Department Dr C E Iredell Dental Surgeons Mr R. Wynne Rouw, Mr H L Pillin, Mr M F Hopson, and Mr J B Parfitt Anæsthetists Mr G Rowell, Mr C J Ogle Dr F E Shipway, Mr H. M Page, Mr A. J McNair and Mr A M Zamoren Medical Registrars and Tutors Dr N Mutch Mr H W Barber, and Mr Heaton Surgical Registrars and Tutors Mr A H Todd Mr G T Mullally Mr R C Ozanne, and Mr E G Schlesinger Radiographers Mr E W H Shenton and Dr Lindsay Locke Bacteriologist to the Hospital Dr J W H Eyre Resident Surgical Officer Mr W E Tanner Hon Librarian Wills Library Dr H S French Lying in Charity Mr Bellingham Smith and Mr Chapple Dean of the Medical School Mr L Bromley Warden of the College Mr L Bromley

Lecturers and Demonstrators in Special Subjects—Anæsthetics Mr Rowell. Hygiene and Public Health Dr R King Brown Pathology Dr P P Laidlaw Gordon Lecturer on Experimental Pathology Dr P P Laidlaw Morbid Anatomy Dr French, Dr Cameron and Dr Hunt Morbid Histology and Bacteriology Dr Eyre Dr Laidlaw and Dr Goodhart Medical and Surgical Pathology Classes Dr Hunt and Mr Davies-Colley Bacteriology Dr Eyre Practical Bacteriology Dr Eyre Forensic Medicine Mr Ryffel Anatomy Mr Rowlands and Mr Turner Practical Anatomy Mr Bromley and four Demonstrators Physiology Dr Pembrey Practical Physiology Dr Pembrey and two Demonstrators Materia Medica and Therapeutics Dr A F Hertz Pharmacology Dr A J Clark. Practical Pharmacy the Hospital Pharmacist Chemistry Professor Martin Lowry F R S Practical Chemistry Professor Lowry Dr Merriman and Mr Rogerson Experimental Physics Dr Fison and Mr Abram Biology Mr Evans and Mr Reed. Psychology Dr Craig

Scholarships—Five entrance scholarships are awarded annually as follows—(a) one scholarship of £100 for students under 21 years of age Latin English Greek or French or German Arithmetic Euclid and Algebra, (b) one scholarship for students under 21 years £120 Inorganic Chemistry Physics and Biology, (c) a Scholarship of £50 open to candidates under 21 years of age to be awarded either in Arts or in Science according to the discretion of the Examiners and to the percentage of the marks obtained (d) two scholarships one of £75 and one of £35 for students under 25 years of age who have completed the curriculum for or passed the examination in Anatomy and Physiology for a medical degree in any University of the British Empire Subject Any two of the following Anatomy Physiology Pharmacology General Inorganic Organic Chemistry

---

UNIVERSITY OF LONDON KING'S COLLEGE—The medical department (Faculty of Science Medical Division) at this College only deals with Preliminary and Intermediate subjects and Instruction in these subjects is given in the College laboratories by university professors and their assistants The following four hospital schools prepare their students only for the final examinations—viz, King's College Hospital, Westminster Hospital, St George's Hospital, and Charing Cross Hospital—sending them to King's College for the earlier part of the curriculum The department is open to both men and women The Anatomy Section will, from next session, admit women students up to 20 in number

The following are the teachers in the subjects concerned — Anatomy Dr E Barclay Smith (Professor) Dr Gladstone, and Demonstrators Physiology Dr W D Halliburton (Professor) Dr Rosenheim and Dr Locke (Readers) and Dr de Souza (Lecturer) Psychology Dr W Brown (Reader) Pharmacology Dr W E Dixon (Professor) Zoology Dr A. Dendy (Professor) Botany Dr W B Bottomley (Professor) Chemistry Mr H Jackson (Daniell Professor), Dr Crossley (Professor) Mr P H. Kirkaldy (Assistant Professor) with Lecturers and Demonstrators Physics Dr O W Richardson (Wheatstone Professor), with Lecturers and Demonstrators

Fees—For London University course For First examination for medical degrees, 25 guineas, for the Second examination, 58 guineas, or two instalments of 30 guineas each For Conjoint Board course For First examination, 20 guineas, for Second examination, 58 guineas or two instalments of 30 guineas each For prospectus and further information application should be made to the Dean of the department (Professor Halliburton)

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL.—The advanced subjects in the curriculum are dealt with at the Medical School attached to King's College Hospital which is situated at Denmark Hill, S E The new hospital stands in the midst of a South London population from which an immense amount of clinical material is forthcoming an average of 3500 out-patients being dealt with weekly There are 350 beds available for in patients, and provision will ultimately be made for 600 beds The hospital contains special departments for diseases of women and children and of the eye, ear, throat and nose, skin, and teeth There is a special department of radiography radio-therapy, and radium therapy, and recently a department of massage medical gymnastics and electro-therapeutics has been developed. There are special operation theatres for diseases of women for eye and for throat nose, and ear cases There is a clinical pathologist, and a laboratory in the hospital where histological bacteriological, hæmatological and chemical investigations are carried out The appointments open to students are those of senior clinical assistant to the special departments, medical, surgical, and obstetric tutorships, resident casualty officer, resident anæsthetist, resident assistant pathologist, and medical, surgical and obstetric registrarships There are 16 resident medical and surgical officers appointed yearly, and the usual senior surgical dressers medical and obstetric clinical clerks surgical dressers and clerks and dressers in all the special departments for in and out-patients and post-mortem clerks

Hospital Staff—Consulting Physicians Dr Greville Macdonald Sir David Ferrier and Sir Hugh Beevor Consulting Surgeon Mr A B Barrow Consulting Aural Surgeon Dr Urban Pritchard Physicians Sir Nestor Tirard Dr Norman Dalton Dr Raymond Crawfurd Dr Aldren Turner Dr F W Tunnicliffe and Dr J C Briscoe Assistant Physician Dr H W Wiltshire Surgeons Sir W Watson Cheyne Bart Mr A Carless Mr F F Burghard and Mr G L Cheatle Assistant Surgeons Mr T P Legg and Mr Arthur Edmunds Obstetric and Gynæcological Surgeon Dr Hugh Playfair Assistant Obstetric and Gynæcological Surgeon Dr W Gilliatt Physician for the Diseases of Children Dr George F Still Assistant Physician for Diseases of Children Dr R. S Frew Surgeon for Diseases of the Throat Sir St Clair Thomson Assistant Surgeon for Diseases of the Throat Dr C W M Hope Ophthalmic Surgeon Mr I V Cargill Assistant Ophthalmic Surgeon Dr H Willoughby Lyle Aural Surgeon Mr Arthur H Cheatle Assistant Aural Surgeon Mr G J Jenkins Physician for Diseases of the Skin D A Whitfield Physician for Tropical Diseases Sir Ronald Ross Dental Surgeon Mr C E Wallis Anæsthetists D J F W Silk and Dr G B Flux Assistant Anæsthetist Mr Cecil Hughes Radiographer Dr Robert

Knox Clinical Pathologist Dr d'Este Emery Pathological Registrar Dr R S Frew Medical Tutor Dr A S Woodwark Surgical Tutor Mr E G Gauntlett Obstetric Tutor Dr W Gilliatt Sambrooke Registrars Dr G W Shore and Mr J Everidge Obstetric Registrar Mr A C McAllister The staff deliver the lectures and demonstrations in their subjects

Other lecturers and demonstrators are —Psychological Medicine Dr Steen Forensic Medicine Dr W R Smith Hygiene Dr W J R Simpson. Surgical Applied Anatomy Mr G J Jenkins

Fees—The composition fee for Hospital work and Final subjects of the curriculum is 70 guineas if paid in one sum, or 72 guineas if paid in two instalments For information and prospectus application should be made to Dr H W Lyle, Dean of the Hospital, or to Mr S C Ranner, M A, Secretary of the Medical School Denmark Hill, S E

Scholarships and Prizes—For the first two scholarships in the list here shown a complete course at King's College is required The money value and subjects of examination are as follows —(*a*) Two Warneford Scholarships, tenable for four years, £25 each per annum, (*b*) Sambrooke Scholarship, £50, (*c*) Rabbeth Scholarship, £20, (*d*) Medical Entrance Scholarships, £50, Anatomy and Physiology, and, £50, Pathology and Pharmacology, open to students who (1) propose to take a degree at any British University and have passed their University examination in Biology Chemistry, and Physics, and who (2) will become students at King's College Hospital from date of entering upon Scholarship, (*e*) Two Medical Entrance Scholarships one in Arts and one in Science, £50 each tenable for five years, successful candidates to study at King's College and King's College Hospital, (*f*) Three Medical Scholarships, £40 for fifth year students, £30 for third year students and £20 for second year students, (*g*) Two Sambrooke Registrarships, open to matriculated students who have filled certain appointments in hospitals, £50 each, (*h*) Carter Prize, £15, Botany, (*i*) Tanner Prize, £10, Obstetrics and Diseases of Women, (*j*) Todd Prize, £4 4*s* and medal, Clinical Medicine, (*k*) Two Burney Yeo Entrance Scholarships, £30 each, open to students of Oxford and Cambridge

Athletics—The King's College Hospital Clubs and Societies Union was formed in 1908, and consists of the Listerian and Musical Societies the Hospital Common Room and the various athletic and sports clubs Admirable playing fields over six acres in extent, have been provided for the use of the students on Dog Kennel Hill, Lordship-lane, S E, about ten minutes' walk from the hospital There are also Tennis Courts in the grounds of the Hospital and of "The Platanes," the hall of residence for students belonging to the hospital

---

LONDON HOSPITAL—The hospital has 922 beds in constant use and no beds are closed It is the only general hospital for East London—i e, for a million and a half people In patients last year, 16 933, out-patients 149,507, accidents 8578, major operations 6480 From the beginning of the war to the close of 1915 3277 military patients were admitted, while naval patients (who were first admitted at the end of September) totalled 375 Wards containing 16 beds have recently been provided for the treatment of syphilis, and it is estimated that 2000 patients will pass through in the course of a year Owing to the enormous number of patients more appointments are open to students than at any other hospital 141 qualified appointments are made annually and more than 150 dressers, clinical clerks, &c, appointed every three months All are free to students of the College Holders of resident appointments have free board Special classes are held for the degrees of the University of London the Fellowship of the Royal College of Surgeons and other higher examinations Special entries for medical and surgical practice can be made The Students' Hostel provides accommodation for 30 students The Clubs Union Athletic Ground is within easy reach of the hospital The Metropolitan and other railways have stations close to the hospital and the college

Staff—Consulting Physician Dr Warner Consulting Surgeons Mr Couper Mr McCarthy, Sir Frederick Treves Bart, Mr Tay Mr Mansell Moullin Mr Harry Fenwick Mr Dean and Sir Frederic Eve Consulting Obstetric Physician Dr Lewers Consulting Dental Surgeon Mr Barrett Consulting Aural Surgeon Mr Mark Hovell Physicians Dr Percy Kidd, Dr Frederick J Smith, Dr W J Hadley Sir Bertrand Dawson, Dr Henry Head, Dr Robert Hutchison, Dr Lewis Smith, Dr Cecil Wall Dr O Leyton and Dr T Thompson Assistant Physician Dr C H Miller Surgeons Mr J Hutchinson Mr T H Openshaw, Mr P Furnivall, Mr Rigby, Mr Sherren, and Mr Lett. Assistant Surgeons Mr Russell Howard Mr R Warren, Mr Frank Kidd, Mr R Milne, Mr A J Walton, and Mr H S Souttar Obstetric Physician Dr H R Andrews Assistant Obstetric Physician Dr E L Holland Physician to Cardiac Department Sir James Mackenzie Demonstrator Dr J Parkinson Physician to the Skin and Light Department Dr J H Sequeira Ophthalmic Surgeons Mr A B Roxburgh and Mr W T Lister Surgeon to the Throat Department Dr Lambert Lack Demonstrator Dr N Patterson Aural Surgeon Mr Hunter Tod Surgeon in charge of the Orthopædic Department Mr T H Openshaw Dental Surgeons Mr H Chapman, Sir Francis Farmer, Mr G Northcroft Mr Paton Pollitt, Mr Evelyn Sprawson, and Mr Walton Thew Medical Officer in charge of the Radiographic Department Dr Gilbert Scott Medical Officer in charge of the Electro- and Physico Therapeutical Departments Dr R S Woods Analyst to the Hospital Mr Hugh Candy Demonstrator in Chemistry Mr J F Twort Bacteriologist to the Hospital Professor W Bulloch Assistant Bacteriologist Dr P Fildes Demonstrator Dr L W Rajchman Inoculation Department Dr G T Western Pathological Institute Dr H M Turnbull, Director, Dr G B Bartlett, Assistant Director, Dr W W Woods, Junior Assistant Director, Clinical Pathologist Dr P N Panton, Assistant, Dr H L Tidy Anæsthetists Dr Probyn Williams, Mr Clapham, and Mr Daly Assistant Anæsthetists Dr Austin Cooper and Mr J D Lyle

The staff deliver the lectures and demonstrations in the subjects Other lecturers and demonstrators are Anatomy Professor W Wright, Dr N C Rutherford and Mr L J Austin Physiology and Histology Professor E P Cathcart and Mr I Peldman Physics Dr A H Fison and Mr W A M Smart Biology Mr G P Mudge and Mr G T Cunningham Mental Diseases Dr J Kennedy Will Materia Medica and Pharmacy Dr E Mellanby and Mr F A Hocking Aural Surgery Dr F F Mnecke Obstetric Tutor Dr S G Luker Dean Professor William Wright, M B, D Sc, F R C S Secretary of College Mr E J Burdon

Scholarships and Prizes—At this school the successful candidates for the first items in the list here shown must enter as full students The value and the subjects of examination are as follows —Price Scholarship £100, and one Entrance Scholarship of £50, subjects of First Medical Examination at the University of London Epsom College Scholarship, free education subjects of First Medical Examination as above, Price Scholarship open to students of Oxford and Cambridge Universities £52 10*s*, Human Anatomy and Physiology, Barton Scholarship, £31 10*s*, subjects of Preliminary Examination in Arts, three Scholarships for Clinical Work £20 each Medicine, Surgery, and Obstetrics, Sutton Prize £20, Pathology, Duckworth Nelson Prize biennial £10 Pathology, Practical Medicine and Surgery, Lethebe Prizes (2) £25, Chemistry, £25 in Anatomy and Physiology, eight Dressers' Prizes amounting to £40 real efficiency and knowledge of Elementary Clinical and Minor Surgery Hutchinson Prize triennial £40 Clinical Surgery, two Practical Anatomy Prizes £6 and £4 respectively, Andrew Clark Prize biennial, £26 Clinical Medicine and Pathology James Anderson Prizes £9 Elementary Clinical Medicine, Wynne Baxter Prize £5 5*s* Forensic Medicine, and Willis Prize triennial £120, subject for 1917 the Etiology of Rheumatic Fever

Medical Research Funds—Research Funds of £21 69 including the Eliza Ann Alston Endowment Fund for Medical Research provide valuable scholarships for men wishing to undertake research or desirous of preparing Theses for University degrees

---

ST MARY'S HOSPITAL.—305 beds 31 of which are in the Clarence Wing and are devoted to cases requiring treatment by therapeutic inoculation The number of in-patients treated during 1915 was 3703 The number of out-patients was 17 559 with 20,715 casualty cases and

of 38 284 The situation of the hospital and Medical School in the centre of the residential districts of Paddington, Bayswater, and North Kensington renders it exceptionally convenient for students rooms, a register of which is kept by the authorities for the use of students

Laboratories &c —The Medical School provides for the entire curriculum Special laboratories are in use for Biology Chemistry, and Physics, a series of lecture theatres and laboratories for Anatomy and Physiology and a spacious and well lighted dissecting room. The Pathological Department is under the direction of Dr B H Spilsbury, and a block of consulting rooms and laboratories in the New Wing of the Hospital has been equipped for the department of Therapeutic Inoculation to meet the increased amount of work in that department A special laboratory is provided for the study of chemical pathology

Appointments —All clinical appointments in the hospital are free to students of the Medical School and the resident medical officers are chosen by competitive examination Six house physicians, six house surgeons four obstetric officers, and two Resident Medical Officers for the Inoculation Wards are appointed in each year and receive board and lodging in the hospital Two resident anæsthetists are appointed in each year and receive a salary at the rate of £100 per annum, with board and lodging Four casualty house surgeons are appointed in each year upon the same conditions Several assistants in the department of Therapeutic Inoculation are appointed annually at salaries of £100 per annum and upwards, the total sum available for salaries of assistants in this department being £1600 per annum In addition to the above, the senior appointments medical, surgical and obstetric registrar casualty physician demonstrator of anatomy physiology and biology are made annually Two assistant pathologists are also appointed annually and are eligible for re-election

Clubs &c —The amalgamated clubs include all the various athletic clubs, as well as the medical society, &c. There is a students club on the Hospital premises the membership of which is included in the amalgamated clubs The athletic clubs ground is situated at Park Royal Acton and is easy of access from the Medical School It consists of Rugby and Association football grounds tennis courts and a large cricket pitch and has a large and well equipped pavilion At the present time the pavilion and the greater part of the ground have been commandeered by the War Office

Special Tuition —In addition to systematic courses of lectures and demonstrations special tuition is provided for the Intermediate and Final Examinations of the Universities of Oxford Cambridge and London and for the Primary and Final F R C S

The composition fee for full students is £140 if paid in one sum or £145 if paid in four instalments University students who have completed their examinations in Anatomy and Physiology are admitted on payment of a composition fee of 65 guineas (£68 5s) paid in one sum or by payment of two annual instalments of 40 guineas (£42) and 30 guineas (£31 10s) respectively A system of annual fees is also in force as an alternative to composition fees University students who have not completed their examination in Anatomy and Physiology pay revision fees until they have passed these examinations and then pay the composition fee. Separate courses of lectures laboratory work or hospital practice may be taken The School Calendar and full information can be obtained from the Secretary S Mary's Hospital Medical School Paddington W

Staff —Consulting Physician Dr Ind Consulting Surgeons Mr Herbert Lace Mr C J Pepper Sir G Anderson Critchett Bart and Mr H E Juler (Ophthalmic) Sir Malcolm Morris (Skin) Dr Scanes Spicer (Throat) and Dr M Handfield Jones (Obstetric). Consulting Anæsthetist Mr Henry Davis Physicians Dr Spicer Phillips Dr Wilfred Harris (and department of nervous diseases) and Sir John Broadbent Bart Surgeons Mr J Ernest Lane Mr Warren Low and Mr W H Carson Greene Physicians in charge of Out Patients Dr W H Willcox (lecturer in forensic medicine hygiene and public health) Dr R H Miller (lecturer in materia medica and therapeutics) and Dr F S Lamond Surgeons in charge of Out Patients Mr Maynard Smith Mr Fitzwilliams M V Z Cope and Mr C A Pannett (supernumerary) Obstetric Surgeon Mr T G Stevens Obstetric Surgeon in charge of Out-Patients Mr A. W Bourne Physician in charge of Children s Department Dr Sidney Phillips Ophthalmic Surgeon Mr Leslie Paton Assistant Ophthalmic Surgeon Mr F A Juler Physician to the Skin Department Dr Graham Little Physician to Department for Nervous Diseases Dr Wilfred Harris Physician to Department for Mental Diseases Dr R H. Cole Dental Surgeon Mr W H Dolamore Surgeons to the Ear Nose and Throat Department Dr G William Hill and Mr C I Graham (assistant) Administrators of Anæsthetics Mr Collum, Mr Henry Chaldecott, and Mr Phillips Director in Medical Charge of Inoculation Department Sir Almroth Wright, C B Assistant Director Captain S R Douglas, I.M S Medical Officer in charge of X Ray Department Dr Harrison Orton Dean Sir John Broadbent

The staff deliver the lectures in the respective subjects, assisted by the following lecturers and demonstrators — Pathology Dr Spilsbury and Dr Kettle Bacteriology Dr Freeman and Mr Fleming Demonstrator in Pathological Chemistry Mr J Webster Descriptive and Surgical Anatomy Professor J Ernest Frazer, Demonstrators Dr R H Robbins and Mr Kenneth Lees Physiology and Histology Dr H E Roaf and Dr Ellison Biology Mr W Rushton Chemistry Dr P Haas demonstrator, Mr J O'F Fletcher Physics Mr W H White Mental Diseases Dr R H Cole Diseases of the Eye Mr Leslie Paton and Mr Juler Medical Registrar Dr H G P Castellain Surgical Registrar Mr K A Lees Practical Pharmacy Mr E A Andrews School Secretary Mr B E Matthews

Scholarships and Prizes —The money value and subjects of examination of these are as follows (*a*) and (*b*) Entrance Scholarships in Natural Science, £100 and £50 respectively awarded by competition in September, (*c*) the Frederic John Palmer Scholarship in Natural Science £25, (*d*) University Scholarship in Natural Science open to members of Oxford or Cambridge University £52 10s , (*e*) University Scholarship in Natural Science open to members of any British University £52 10s , (*f*) Epsom Scholarship awarded by nomination £52 10s (*g*) Gold Medal £20 an Essay on Some Special Point in Clinical Medicine, (*h*) Dermatology Prize awarded twice in each year £5 5s , (*i*) Meadows Prize awarded in alternate years £8 Obstetrics

---

MIDDLESEX HOSPITAL.—The Hospital and Medical School are situated in Mortimer street, at the top of Berners-street and only a few minutes walk from Goodge street Station (Hampstead and Charing Cross Tube) Oxford Circus Stations (Bakerloo and Central London Tubes) and Portland road Station (Metropolitan Railway)

The hospital contains 447 beds including special wards for Cancer Cases Maternity and Gynæcological Cases and for Diseases of Children and the Skin and Eye

The Cancer Charity containing 92 beds and Special Investigation Laboratories offers unrivalled opportunities for the study of Cancer both in its clinical and pathological aspects

In the Electro-Therapeutical Department students obtain instruction in the Treatment of Lupus and Cancer by the X Ray method of treatment An Electrocardiograph Department has recently been established

The Hospital and Medical School are fully equipped for the theoretical and practical teaching of all the subjects of the medical curriculum and for the Diploma in Public Health Ample laboratory and class room accommodation is provided

The Bland Sutton Institute of Pathology contains a new lecture theatre and large pathological bacteriological and clinical laboratories where every facility is given for original research The Anatomical and Pathological Museum is now part of the Institute Special classes are held to prepare students for the Intermediate examinations of the Universities and for the Primary and Final examinations for the F R C S (England) Diploma There is a Residential College in the hospital for students

Hospital Appointments —All appointments are made without fee of any kind and the following are appointed at intervals annually six house physicians each house surgeons two obstetric and gynæcological house surgeons two clinical medical officers two clinical surgical officers

and two resident officers to the special departments The medical and surgical casualty officers are appointed twice a year The medical, surgical, and obstetric and gynæcological registrars are appointed as vacancies arise

Non resident qualified clinical assistants are appointed to assist in the various out-patient departments Clinical clerks and surgical dressers are also appointed in every department

Scholarships Prizes, &c —(*a*), (*b*), and (*c*) Three Entrance Scholarships, value £100, £50, and £25, and (*d*) a University Scholarship, value £50 are awarded annually in September The successful candidates are required to become general students of the school (*e*) A Freer Lucas Scholarship for Students of Epsom College is awarded annually on the nomination of the Headmaster There are also, (*f*) and (*g*), two Broderip Scholarships, value £60 and £40 respectively, (*h*) the Lyell Gold Medal and Scholarship, value £55 5*s*, (*i*) the John Murray Medal and Scholarship, value £25 (awarded every third year), (*k*) the Freeman Scholarship, value £30, (*l*) the Hetley Clinical Prize value £25, (*m*) the Leopold Hudson Prize, value 11 guineas, and (*n*) the Second Year's Exhibition value 10 guineas There are also numerous class prize examinations [2]

In connexion with the Cancer Investigation Department the following Scholarships are awarded —Richard Hollins Research Scholarship, value £105, Salters' Company Cancer Research Scholarship, value £100, and a Cancer Research Scholarship, value £60

Fees —The Composition Fee for the curriculum for the diplomas of the Conjoint Board or Society of Apothecaries is 135 guineas, for the curriculum for the degrees of the University of London 145 guineas, for students who have passed the First Examination for Medical Degrees (University of London) 120 guineas, and for those who have completed their Anatomical and Physiological studies, 70 guineas The fee for Dental students is 54 guineas The fees may be paid by instalments

The Amalgamated Students' Club includes the following the Medical Society, the Common Room Society, the cricket club, the football clubs, the athletic club, the rowing club, the musical society, the chess club the lawn tennis club, and the hockey club The athletic ground, which is eight acres in extent, is situated within easy access of the hospital—at Park Royal There is a gymnasium within the precincts of the hospital A subscription to the Amalgamated Students Club is payable by all General and Dental students

Medical and Surgical Staff —Consulting Physicians Dr Cayley, Dr Sidney Coupland, Sir Richard Douglas Powell, Bart, and Sir James Kingston Fowler, K.C V O Consulting Surgeon Sir Henry Morris, Bart Consulting Obstetric Physician Dr W Duncan Consulting Physician to the Skin Department Dr Liveing Consulting Ophthalmic Surgeon Mr Lang Consulting Surgeon to the Ear and Throat Department Mr Stephen Paget Consulting Dental Surgeons Mr W Hern and Mr W S Nowell

Physicians Dr Pasteur Dr Wynter, Dr Voelcker and Dr Wethered Surgeons Sir Alfred Pearce Gould, K C V O, Sir John Bland Sutton, Mr Murray, and Mr Kellock Physician and Assistant Physician to the Department for Skin Diseases Dr Pringle and Dr MacCormac Physician to the Department for Nervous Diseases Dr Campbell Thomson (Dean of the Medical School) Obstetric and Gynecological Surgeon and Assistant Obstetric and Gynæcological Surgeon Mr Berkeley and Mr Bonney Physician to Out-patients Dr Young Surgeons to Out-patients Mr Handley and Mr Taylor Assistant Physicians Dr Lakin, Dr MacCormac and Dr Cockayne Assistant Surgeon Mr Webb-Johnson Ophthalmic Surgeon and Assistant Ophthalmic Surgeon Mr Lawson and Mr Greeves Surgeon to the Ear, Nose, and Throat Department Mr Somerville Hastings Dental Surgeon and Assistant Dental Surgeon Mr Turner and Mr James Anæsthetists Mr T G A Burns Mr H Charles and Mr R E Apperly Assistant Anæsthetist (Resident) Mr Warwick Registrars Dr G E Beaumont Mr Rivett Mr Oliver, and Dr Morson Resident Medical Officer Dr D R C Shepherd.

The staff deliver the lectures and demonstrations in their respective subjects Other lecturers are Psychiatry Dr James Chambers Bacteriology under the supervision of the director of the Bland Sutton Institute of Pathology Dr C H Browning Anatomy and Embryology Dr Yeates Physiology and Biology Dr Strickland Goodall Chemistry and Physics Dr A M Kellas.

ST THOMAS'S HOSPITAL.—This hospital received its present charter from King Edward VI, but as a monastic institution was in existence prior to the year 1207 The building occupies a unique position by the river, opposite the Houses of Parliament and contains 933 beds, including 530 for military patients The in patients last year numbered 9995 whilst the number of attendances as out-patients including the casualty and light departments, was 246 652 There are special departments for the treatment of women, children, the eye, ear, nose and throat skin, and teeth Departments for light treatment, X rays, and physical exercises are also special features A speech clinic has recently been inaugurated in connexion with the Children's Department Exceptional facilities are offered in the hospital laboratories for the study of general pathology, clinical pathology, chemical pathology cardiology and of treatment by serums and vaccines Surgical operations take place in the main theatres every day except Saturdays at 2 P M Clinical teaching in the wards, out patients and special departments, is available every day of the week Clinical lectures are delivered every Wednesday during the sessions All appointments in the hospital are open to students without extra fee Clinical assistants to all the special departments are appointed every three months A resident assistant physician and a resident assistant surgeon at a salary of £150 each are appointed biennially, also four hospital registrars (medical, surgical, obstetric and ophthalmic) the two former receive a salary of £150 and the two latter £50 An assistant in the clinical laboratory and an assistant pathologist are paid at the rate of £200 per annum Appointments open to students before qualification Clinical clerks and dressers for in and out patients are selected from students who have completed the third year's work Every student acts as clerk in the post mortem room and in one of the pathological laboratories takes his turn on maternity duty under proper supervision in the maternity ward, thus obviating any necessity for seeking instruction elsewhere Students are instructed in the administration of anæsthetics by one of the hospital anæsthetists The Students Club comprises a spacious restaurant and smoking and reading room There is no occasion for students to leave the hospital buildings during working hours The curriculum is arranged to meet the requirements of all the Examining Bodies Special classes are held for the examinations at the University of London and for the First and Final Fellowship Examinations of the Royal College of Surgeons of England Tutorial classes in all subjects precede the various examinations The hospital is easily accessible from all parts

Fees —The annual composition fee is 30 guineas, covering all tutorial classes—in addition to a fee on entrance Qualified practitioners are permitted to attend the hospital practice on terms which may be ascertained from the secretary

Staff —Consulting Physicians Dr Harley Sir Seymour J Sharkey and Dr Acland Consulting Obstetrical Physician Dr Gervis Consulting Ophthalmic Surgeon Mr Liebreich Consulting Anæsthetist Mr W Tyrrell Consulting Dentist Mr C E Truman Physicians Dr Hawkins Dr Mackenzie Dr Turney Dr Perkins and Dr Box Surgeons Sir G H Makins Mr Battle, Mr Ballance Mr Robinson Mr Cuthbert Wallace, Mr F M Corner and Mr Percy Sargent Physicians to Out patients Dr Russell Dr Buzzard, and Dr Cassidy Surgeons to Out patients Mr C A R Nitch and Mr J F Adams Obstetric Physicians Dr Fairbairn and Dr Heller Ophthalmic Surgeons Mr Fisher and Mr Hudson Physician for Diseases of Children Dr Box Surgeon for Diseases of Children Mr J E Adams Mental Diseases Dr R Percy Smith Surgeon for Diseases of the Throat Mr W G Howarth Physician for Diseases of the Skin Dr E Stainer Surgeon for Diseases of the Ear Mr Marriage Dental Surgeon Mr P Mckay Resident Assistant Physician Dr G Hoffmann Resident Assistant Surgeon Mr S H Rouquette Anæsthetists Dr H Low Dr Mennell Dr Hedley and Dr Dakin Pharmaceutist Mr J A Jennings Curator of Museum

[2] Certain of these scholarships have been modified for the period of the war

Professor S G Shattock. Director of Laboratories Mr L. S Dudgeon Chemical Pathologist Dr Hugh Maclean Superintendent of X Ray Department Mr A. D Reid Physico-therapeutic Department Mr R Timberg, Dr J B Mennell and Mr W R Bristow Tuberculosis Department Dr R C Wingfield Cardiograph Department Dr M A. Cassidy

The staff deliver the lectures in their respective subjects, assisted by the following lecturers and demonstrators — Anatomy Professor F G Parsons Chemistry Dr Le Sueur Physiology Dr J Mellanby Biology Dr O Donoghue and Mr W Rushton Physics Mr Brinkworth. Midwifery and Diseases of Women Dr Fairbairn Pharmacology and Therapeutics Dr Woolley Forensic Medicine and Toxicology Dr E Smith and Dr J C Withers Mental Diseases Dr W H B Stoddart. Public Health Dr H P Newsholme Tropical Medicine Professor Sandwith. Instruction in Vaccination by Dr Cope.

Dean of the School Dr E Stainer Sub Dean Dr O R. Box Secretary Mr G Q Roberts from whom any further information may be obtained

Scholarships and Prizes—At this school there are five Entrance Scholarships—namely two in Arts equivalent to the tuition fees for the first medical examination, two in Natural Science, of the value of £150 and £60 respectively to be taken out in tuition fees, and the University Scholarship of £50 in Anatomy Physiology and Chemistry The money value and subjects of examination of the remainder are as follows (*a*) and (*b*) two College Prizes one for second year students and one for third year students £10 and £5 respectively, (*c*) William Tite Scholarship for second year students £25, (*d*) and (*e*) Musgrove Scholarship or (alternately) Peacock Scholarship, each for third year students and tenable for two years, £35 each, (*f*) three College Prizes for fifth year students of £10 each and three of £5 each, (*g*) Cheselden Medal Surgery and Anatomy, (*h*) Mead Medal Medicine Pathology, and Hygiene, (*i*) Toller Prize Medicine Pathology and Hygiene (*j*) Bristowe Medal Pathology and Morbid Anatomy (*k*) Solly Medal and Prize biennially, Surgical Reports, (*l*) Treasurer's Gold Medal for the most distinguished fifth year student, (*m*) Wainwright Prize, Medicine Pathology, and Hygiene (*n*) Hadden Prize Pathology, (*o*) Beaney Scholarship £50 biennially Surgery and Surgical Pathology (*p*) Sutton Sams Prize biennially reports of cases in Obstetric Medicine (*q*) Grainger Testimonial Prize, £31 10s Anatomy and Physiology, (*r*) Salters Company Research Fellowship tenable for three years £100 annually Pharmacology, (*s*) Louis Jenner Research Scholarship tenable for two years £60 annually Pathology, and (*t*) Research Scholarship tenable for two years £200 per annum

---

UNIVERSITY OF LONDON UNIVERSITY COLLEGE.—University College has been constituted a University centre for the teaching of medical sciences The College Faculty of Medical Sciences comprises the Departments of Physics Chemistry Botany and Zoology (the Preliminary Medical Sciences) also the Departments of Anatomy Physiology and Pharmacology (the Intermediate Medical Sciences) and the Departments of Hygiene and Public Health and of Pathological Chemistry (Post graduate Study)

Faculty of Medical Sciences—Composition fees—For the courses required by the University of London 1 For the First Medical Course 26 guineas entitling to one attendance and to the privileges of the Union Society for one session 2 For the Second Medical (Intermediate) Course 53 guineas if paid in one sum 60 guineas if paid in two instalments of 30 guineas each This fee entitles to attendance at Anatomy and Physiology during three years and to one attendance at Organic and Applied Chemistry Pharmacology and Materia Medica, and to the privileges of the Union Society for two sessions

For the medical education required by the Examining Board in England and the Society of Apothecaries First examination Parts I II III 21 guineas entitling to one attendance and to the privileges of the Union Society Fifth Examination Part IV and second examination 53 guineas if paid in one sum and 60 guineas if paid in two instalments of 30 guineas each This fee entitles to attendance during three years and to the privileges of the Union Society for two sessions

Professors and Lecturers—1. First Medical Course.—Chemistry —Professors J N Collie F R.S and F G Donnan, F R.S, assistant professor Samuel Smiles D Sc., teachers of chemistry to medical students R H Plimmer D Sc, and W B Tuck, D Sc., assistants Irvine Masson, M Sc., R. E Slade D Sc., and H Terrey B Sc, demonstrator W W Reeve B Sc. Physics —Professor W H Bragg, F R S, reader in thermo-dynamics A. W Porter F R.S, assistants N Eumorfopoulos, B Sc A O Rankine, D Sc. and D O Wood, M Sc. Botany —Professor F W Oliver, F R.S, reader in plant physiology T G Hill A.R C S, assistant E M Cutting M A Zoology —Professor J P Hill F R S, assistants C H. O Donoghue, D Sc., and F J Bridgman, A R C S 2 Second Medical (Intermediate) Course.—Anatomy —Professor G D Thane, F R C S, demonstrator and lecturer in surgical anatomy H T Mant, F R.C S, demonstrator, lecturer in physical anthropology, and curator of the museum D E Derry M.B, demonstrator and lecturer in anatomy T B Johnston M B, assistant demonstrators G V Anderson and R B Green Jodrell Professor of Physiology E H Starling F R.S Professor of General Physiology W M Bayliss, F R S Readers G A Buckmaster, M D and R H Plimmer, D Sc Assistant and Sharpey Scholar C Lovatt Evans, D Sc Pharmacology —Professor A R. Cushny F R S Assistant J W C Gunn, M B

Scholarships and Prizes—The first three items on the present list require a complete intermediate course at University College. The money value and subjects at examinations are as follows (*a*) The Bucknill Scholarship 135 guineas, (*b*) and (*c*) two Entrance Exhibitions 55 guineas each, Chemistry, Physics Botany and Zoology, (*d*) Cluff Memorial Prize £15 biennially Anatomy, Physiology, and Chemistry, (*e*) Schäfer Prize in Physiology, £18 triennially, (*f*) Sharpey Physiological Scholarship £105, Biological Sciences, (*g*) Morris Bursary for sons of deceased professional men by nomination tenable for two years £16 a year, and (*h*) five Gold and five Silver Medals awarded annually in various departments

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL.—Dean J Herbert Parsons, F R C S Vice-Dean H Morriston Davies F R C S Secretary L R Thomas Fees for Preliminary and Intermediate Course See under University College For the Final M B, B S (London) Course 80 guineas if paid in one sum, 82 guineas if paid in two instalments as follows—first year 50 guineas, second year, 32 guineas This fee entitles to attendance on Lectures and Hospital Practice during three years and to one attendance on Practical Pathology and Practical Surgery Vaccination and attendance at a Fever Hospital are not included Students who obtain a medical qualification within three years of the time of commencing this course are not required to pay an additional fee for further attendance. This course of instruction is also suitable for the corresponding examinations at the Universities of Oxford Cambridge and Durham and for the medical education required by the Examining Board in England and the Society of Apothecaries

There are over 300 beds in the hospital

Special Departments Clinical and Laboratory Facilities—Those who are desirous of carrying out original research in Pathology including Morbid Anatomy Bacteriology Experimental Pathology and Chemical Pathology are admitted to work in the laboratories of the school by the Director of Pathological Studies and Research and under certain conditions can receive grants from the Charles Graham Medical Research Fund A special course of instruction is given for preparation for the examinations for Diplomas in Public Health of the various universities and examining bodies, also special courses of Lectures and Demonstrations in Anæsthetics Diseases of the Eye, Ear, Nose and Throat Skin and Diseases of the Teeth in Electrical and Radioscopic Diagnosis and Treatment in Clinical and Tropical Pathology and in Cardiac Pathology These courses are designed for senior students and graduates

Appointments tenable by Students—Clerkships and dresserships to the physicians surgeons anæsthetist, and pathologist are allotted amongst the students of the hospital Maternity students are appointed each month and reside in the Students House connected with the Medical School and Hospital Eight house physicians and house surgeons four senior and four junior obstetric assistants are selected

annually by examination from among the senior students who have a medical qualification The house physicians and house surgeons reside free in the hospital for six months, and the senior obstetric assistants for three months In addition to these posts there are certain special appointments which are vacant from time to time and are filled by senior students of the hospital 1 The Resident Medical Officer This officer is appointed for a period of two years and is chosen from amongst the more senior recent residents of the hospital 2 The two Surgical Registrars are also chosen from among the more senior recent residents of the hospital 3 The Obstetric Registrar 4 Two Casualty Medical Officers and a Casualty Surgical Officer are appointed, each for a period of six months 5 Assistant in Ear and Throat Department, appointed for one year 6 Assistant in Ophthalmic Department, appointed for one year 7 Registrar in Anæsthetic Department, appointed for one year 8 Deputy Anæsthetists During the absence of one or another of the Anæsthetists in the summer months a senior qualified student is appointed as a substitute and is granted a special certificate

Museum of Pathological Anatomy —The Museum, a spacious and well lighted room, is open for study from 9 A M to 5 P M Microscopic sections of most of the specimens in the Museum have been prepared and are available for the use of students on application to the Curator The Museum contains 1100 admirable paintings by Sir Robert Carswell and Sir Charles Bell and a collection of old surgical instruments formerly belonging to Robert Liston

The Anatomical Museum of the University of London, University College, is open to all students of University College Hospital and Medical School on the recommendation of the School Committee

The Medical Library is open daily for the purposes of study to every student of the Medical School from 9 A M to 5 P M, Saturdays 9 A M to 1 P M It contains about 13 500 works on medical subjects including all the current text-books and works of reference required for study or research

The Medical Society of University College Hospital Medical School exists for the dual purpose (1) of promoting the study of Medical and Surgical Science, and (2) of promoting social intercourse among its members All Students of the Medical School are eligible for membership Meetings are held once a fortnight for the purpose of discussing subjects connected with the study of medicine In its social aspect the society includes various athletic clubs and superintends the gymnasium and squash racquet court in the Medical School The Athletic Ground, which is used in conjunction with the Union Society of the University of London University College, is situated near the Great Western Railway station at Perivale

Residence of Students —A register of boarding residences is kept in the office of the Medical School for the convenience of students, these residences are not under the control of the school authorities University College Hall Ealing is recognised by the Medical School authorities as a residential hostel The Students House in University street contains large and comfortable rooms The Maternity Students occupy them on payment of a moderate charge Gentlemen who desire assistance in their studies should consult the Dean or Lecturers

Hospital Staff —Consulting Physicians Sir John Williams, Dr F T Roberts and Sir Thomas Barlow Physicians Sir John Rose Bradford, Dr Sidney Martin, Dr H Batty Shaw Dr F J Poynton and Dr C Bolton Assistant Physicians Dr T R Elliott and Dr T Lewis Obstetric Physicians Dr H R Spencer and Dr G F Blacker Physician to Skin Department Dr A M H Gray Physician in charge of Mental Diseases Department Dr B Hart Consulting Surgeons Sir John Tweedy (Ophthalmic), Sir Rickman Godlee and Mr B Pollard Surgeons Mr R Johnson, Mr W Trotter and Mr H M Davies Assistant Surgeon Mr G E O Williams Ophthalmic Surgeons Mr P Flemming and Mr J H Parsons Professor and Lecturer on Public Health Dr H R Kenwood Dental Surgeons Mr P S Spokes and Mr H J Relph Anæsthetists Dr D W Buxton and Dr H J Shirley Assistant Anæsthetist Dr A B Kingsford Surgical Registrars Mr E K Martin and Dr C E Shattock Resident Medical Officer Dr H L Tasker Pathologist Mr T W P Lawrence Bacteriologist Dr F H Teale Assistant Physician in Charge of Cardiographic Department Dr T Lewis Officer in Charge of Electro Radiographic Department Mr R H Cooper Pharmacist Mr C H Hampshire The staff deliver the lectures and demonstrations in their subjects

Other lecturers and demonstrators are Surgical Anatomy Mr H T Mant Diseases of Childhood Mr H Tiller General Pathology Dr A E Boycott Practical Pathology Mr D Embleton, Mr S H Warren and Mr E Bach Diseases of the Ear and Throat Mr H Tiller and Mr G S Hett In the Dental Department in Great Portland street, formerly known as the National Dental Hospital, there is afforded the opportunity for attending lectures and practical instruction in diseases of the mouth and teeth

Scholarships and Prizes —At this School the first two Scholarships (*a*) and (*b*) require a complete course at University College and University College Hospital Medical School, the second two (*c*) and (*d*) require a final course at the Medical School The money value and subjects of examination are as follows —(*a*) Entrance Scholarship, Bucknill 135 guineas, Chemistry Physics Botany and Zoology, (*b*) Epsom Free Medical Scholarship subjects of Preliminary Scientific Examination and Nomination by Epsom College, (*c*) and (*d*) two Goldsmid Entrance Exhibitions, 80 guineas each Anatomy and Physiology, (*e*) Graham Scholarship in Pathology, £200 per annum for two years awarded by the Senate of the University of London, (*f*) Atkinson Morley Scholarship tenable for three years, £45 per annum, Surgery, (*g*) Atchison Scholarship tenable for two years £55 per annum, General Proficiency in Medical Studies (*h*) Magrath Clinical Scholarship about £100, Clinical Cases, (*i*) Percival Alleyn Scholarship about £60, Surgery, (*j*) Filliter Exhibition £30, Pathology, (*k*) Erichsen Prize, £10 10*s* Practical Surgery, (*l*) two Senior and two Junior Fellowes Clinical Medals for Clinical Medicine, (*m*) two Liston Gold Medals for Clinical Surgery, (*n*) Alexander Bruce Gold Medal for Pathology and Surgery, and (*o*) Tuke Silver and Bronze Medals for Pathology

---

WESTMINSTER HOSPITAL —The hospital contains 215 beds and affords relief to upwards of 2000 in patients and 30,000 out-patients annually There are separate departments for Diseases of the Eye Ear Skin Teeth and Throat for Orthopædic practice, for Diseases of Women for Diseases of Children for Radiography and for the Light Treatment The Anatomical, Pathological and Materia Medica Museums are open to all students of the school

A medical and surgical registrar, each with a salary of £50, are appointed annually Two house physicians three house surgeons and a resident obstetric assistant are appointed for six months after examination, and are provided with rooms and commons, also one assistant house physician and one assistant house surgeon with commons only Clinical assistants to the assistant physicians and assistant surgeons and to the officers in charge of special departments are appointed from among qualified students of the hospital

By a scheme for the concentration of the teaching of the preliminary and intermediate subjects of the curriculum which has the support of the London University an arrangement has been made by the Westminster School for the teaching of these subjects at King's College Students however join the Westminster Medical School as formerly and may compete for Entrance Scholarships as heretofore

There is laboratory accommodation for practical work in Chemistry Physics, Biology Anatomy Physiology Histology Pathology and Bacteriology and a new Clinical Laboratory has recently been erected Facilities for research are afforded in all the laboratories

For membership of the Clubs Union students are not required to pay the expense being covered by the entrance fee to the school

Staff —Consulting Medical Staff Sir Pryan Duckworth Dr de Havilland Hall and Dr Hobb (lecturer on general pathology with Dr Braxton Hicks) Consulting Surgical Staff Mr Richard Davy Mr G Cowell and Mr N C Macnamara Medical In-patient Staff Dr A M Gossage, Dr Purves Stewart and Dr Carr

Jones Obstetric Physician Dr G H. Drummond Robinson Surgical In patient Staff Mr W G Spencer Mr A. H Tubby and Mr William Turner Medical Out-patient Staff D D H de Souza, Dr Kinnier Wilson, and Dr O K. Williamson Physician for Diseases of the Skin Dr S E Dore Assistant Obstetric Physician Dr S Dodd. Medical Officer in Charge of Electrical Department Mr E. S Worrall Surgical Out-patient Staff Mr. Arthur Evans and Mr Roca Carling Surgeon in charge of the Throat Department Mr P R W De Santi. Ophthalmic Surgeon Mr G T B James Surgeon in charge of the Orthopædic Department (Vacant) Surgeon in charge of the Ear Department Mr P R. W De Santi. Dental Surgeons Mr C W Glassington and Mr E Gardner Administrators of Anæsthetics Dr N W Bourne Dr V B Orr and Mr E W Gandy Physician Pathologist Dr R G Hebb Assistant Pathologist and Curator of Museum Dr J A. Braxton Hicks Resident Medical Officer Dr H. J Johnson. Medical Registrar (Vacant) Acting Surgical Registrar (Vacant). Pharmacist Mr A E Tanner Secretary Mr S M Quennell

The staff deliver the lectures and give demonstrations in their respective subjects Other lecturers and demonstrators are —Medicine Lieutenant-Colonel Pratt. Elementary Practical Medicine Mr Worrall. Insanity Dr Ralph Brown Surgery Mr W Turner Materia Medica, Therapeutics and Pharmacology Dr Dixon Forensic Medicine and Bacteriology Dr Burnford Toxicology Dr H Wilson Hake Public Health Dr S Monckton Copeman Anatomy (Professor) Dr Barclay Smith, (Lecturer) Dr R. J Gladstone. Demonstrators of Practical Anatomy Mr Bond and Mr Fenwick. Physiology and Practical Physiology and Histology Dr Halliburton Dr Locke and Dr Rosenheim Biology Dr Bottomley and Mr Schwartz Chemistry and Practical Chemistry Dr Crossley Dr Jackson Mr Kirkaldy Mr Collins and Mr Hinkel Physics Dr Richardson Dr Allen Dr H Moore and Mr Martyn. Secretary and Librarian Dr E B Hulbert

Scholarships and Prizes —The following Entrance Scholarships are offered for competition Winter Session (*a*) Arts Scholarship the Guthrie. £60 (*b*) Science Scholarships Natural Science Scholarship £60, Chemistry and Physics Scholarship £30, and Two Scholarships in Anatomy and Physiology £50 each. Summer Session Two Scholarships in Anatomy and Physiology £50 each During the period of study the following prizes may be competed for Starges Prize in Clinical Medicine about £6 Notes of Cases, Clinical Surgery Prize £5 Notes of Cases Chadwick Prize £21 in books or instruments Medicine and Surgery including Pathology and Applied Anatomy and Physiology, Frederic Bird Medal and Prize open to Fourth year Students £14 in medal and books or instruments—Midwifery Diseases of Women Medicine Pathology Forensic Medicine and Bacteriology and Public Health and Toxicology Abrahams Prize in Clinical Pathology 5 guineas a Laboratory Tests in Practical Work Alfred Hughes Memorial Prize open to Second year Students about £5 in books or instruments—Anatomy Huxley Memorial Prize 3 guineas in books or cash open to Second year Students—Physiology, Carter Gold Medal and Prize for Botany, open to Students of no more than three years attendance gold medal and books of the joint value of £15, Hill Medal awarded to Third year Students Second year Scholarship £20 Elementary Anatomy Physiology Histology and Organic Chemistry Daniell Scholarship [illegible] two years £20 Chemistry Rabbeth Scholar [illegible] to First year Students £20 Class Examinations in the Elementary Science Course and the Sambrooke Kings College Scholarship in Science value £25

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE [illegible] Hunter Street Brunswick Square W C—The [illegible] course for the degrees of the [illegible] and for the diplomas of the Royal [illegible] £170 [illegible] Three sums [illegible] fees

The Royal Free Hospital [illegible] 19 beds of [illegible] 178 are [illegible] 13 [illegible] special six for ophthalmic 11 for maternity, and four for isolation cases A new block has recently been completed containing large and completely equipped departments for Out-patients, Massage Dental, X Ray, and Electrical Work, Maternity (interne 11 beds and externe) and Casualty New and enlarged students quarters are also provided Students can also attend the in patient and out patient practice of the New Hospital for Women.

An agreement has also been made under which students of the school attend full clinical courses at St Mary's Hospital, Paddington (305 beds)

Special courses are arranged for the Primary Fellowship Examination of the College of Surgeons, also for dental students in conjunction with the London Dental Hospital Leicester square, and the National Dental Hospital.

Students after qualification can hold the posts of house physician house surgeon, obstetric assistants clinical assistants anæsthetists and assistant anæsthetist, medical and surgical registrars, pathologists medical electrician and museum curator, and at the Medical School the posts of demonstrators in the departments of Anatomy, Physiology, Chemistry and Physics They can also hold posts at the New Hospital for Women South London Hospital for Women and Children and at four other hospitals in London entirely officered by medical women Many other resident posts in London and elsewhere are also open to them

The School buildings have been entirely rebuilt in recent years, and there are spacious well-equipped laboratories which afford every facility for efficiency of teaching and practical work in all departments An extension of the School will be completed in September, and will be opened by Her Majesty *the Queen on Oct 2nd 1916* The extension will enable 75–80 new students to be received at the School each year

There are residential chambers at 8 Hunter street, and the Secretary can be consulted on the subject of other residences for students The Students' Union arranges the social athletic and other clubs and societies at the School.

Staff —Consulting Physicians Dr S West and Dr Sainsbury Physicians Dr J W Carr Dr A. G Phear and Dr W P S Branson. Assistant Physicians Dr Saunders, and Dr Firth Consulting Surgeon Mr A B Barrow Surgeons Mr J Berry Mr W H Evans and Mr Cunning Consulting Neurologist Dr Farquhar Buzzard. Consulting Physician for Diseases of Women Dr Mary Scharlieb Physician for Diseases of Women Dr Ethel Vaughan-Sawyer Assistant Physician for Diseases of Women Dr Florence Barrett Surgeon for Diseases of Throat Nose and Ear Mr J Gay French Surgeon for Diseases of the Eye Mr M L Hepburn Assistant Surgeons Mr C Pannett and Mr C A Joll Surgeon for Diseases of Skin Mr W H Evans Dental Surgeons Dr Eva Handley Read L D S and Mr E P Hudson L.D S Pathologist Dr Elizabeth Lepper Registrars Dr Cuthbert and Miss E. Davies Colley F R.C S Anæsthetists Dr May Dickinson Berry Dr Jane Turnbull, Dr Vivian Orr and Dr Anna Gilliatt. Secretary Mr Reginald Garratt

Lecturers —At the School Anatomy and Practical Anatomy Professor F Wood Jones. Physiology and Practical Physiology Dr Winifred Cullis Chemistry Mr J A Gardner M A., F I C and Miss Widdows B Sc. Physics Mis M Waller B Sc. Biology Mr Mudge A.R C S Pharmacology Dr F Ransom Practice of Medicine Dr J W Carr and Dr Emily Flemming Midwifery Dr Florence Barrett Gynæcology Dr Ethel Vaughan Sawyer Forensic Medicine Dr Hawthorne Toxicology Dr Wilson Hake Practice of Surgery Miss Aldrich Blake and Mr W H Evans Operative Surgery Mr Pannett Pathology Dr W d Este Emery Mental Pathology Dr J G Porter Phillips Tropical Diseases Dr C W Daniels Operative Midwifery Dr Florence Barrett Demonstrators of Anatomy Dr Mary Keene, of Physiology Mrs Tribe B Sc, Mrs Terry, B Sc Miss Seyer B Sc of Chemistry Miss Laycock B Sc Mrs Taylor Miss Williams B Sc, of Physics Miss Griffiths B Sc, Miss Smith B Sc, of Practical Pharmacy Miss Buchanan, M P S

Dean of the School Miss Aldrich Blake M D M S, Honorary Secretary Dr May Thorne, Secretary and Warden Miss L M Brooks

Scholarships and Prizes —(*a*) Isabel Thorne Scholarship, (*b*) S Duncan's Medical Exhibition £60 a year,

tenable for three or five years (c) Bostock Scholarship, tenable for two or four years, and next to be awarded in June, 1919, £60 (d) Mabel Sharman Crawford Scholarship, tenable for four years, £20 a year (e) Mabel Webb Research Scholarship, tenable for one year and renewable, £30, Physiology, Chemistry, or Pathology (f) Fanny Butler Scholarship, tenable for four years, next award in September, 1918, £14 10s (g) John Byron Bursary, tenable from two to four years for students already in the School requiring assistance for the prosecution of their medical studies, application to the Secretary by March 31st, next award in March, 1917, £20 (h) Ellen Walker Bursary tenable for two years, awarded to a student beginning fourth year of medical study, £25 a year (j) Helen Prideaux Scholarship, awarded every second year to a student who has become qualified during the two years immediately preceding the award, and to be spent in assisting the holder to further study, £40 (k) Agnes Guthrie Bursary, value £60, is offered annually to students who desire to pursue a full course of study for the Licentiateship in Dental Surgery (l) Dr Edith Pechey Phipson Post-graduate Scholarship of the value of £40, awarded annually in June It is open to all medical women, preferably coming from India, or going to work in India, for assistance in Post-graduate study (m) Sarah Holborn Scholarship, value £20 a year for three or five years, awarded every alternate year, next award in 1917 Two Richardson Kuhlmann Prizes are given each year, value £12 for proficiency in Clinical Obstetrics, value £8, for proficiency in senior subjects respectively Three Evans Prizes of £3 3s, £2 2s, and £1 1s are given in alternate years on the results of the class examination in Midwifery The Evans Prize for Operative Midwifery, value £5 5s, is awarded yearly The Edith Pechey Phipson Prize in Pharmacology, value £3 3s, is awarded annually There is also a small fund from which assistance can occasionally be given to students and to graduates who specially require pecuniary help Prizes and Certificates of Honour are awarded in each class at the end of the session

UNIVERSITY OF DURHAM

Two Diplomas, one Licence, and six degrees are conferred —viz, the Diploma in Public Health, Diploma in Psychiatry, the Licence in Dental Surgery, and the degrees of Bachelor of Medicine, Bachelor of Surgery, Master of Surgery, Doctor of Medicine, Bachelor of Hygiene, and Doctor of Hygiene

For the degree of *Bachelor of Medicine* there are four professional examinations The subjects of the First Examination are—Elementary Anatomy Elementary Biology, Chemistry and Physics The subjects of the Second Examination are—Anatomy and Physiology The subjects for the Third Examination are—Materia Medica and Pharmacy, Pathology Medical Jurisprudence, Public Health, and Pathology and Elementary Bacteriology The subjects of the Fourth Examination are—Medicine, Clinical Medicine and Psychological Medicine, Surgery and Clinical Surgery Midwifery and Gynæcology, Therapeutics, and Diseases of the Skin of the Throat, Nose, and Ear, and of Children

It is required that at least one of the five years of professional education shall be spent in attendance at the University College of Medicine Newcastle upon Tyne Candidates who have passed the First and Second Examinations of the University will be exempt from First and Second Examinations of the Conjoint Board

For the degree of *Bachelor of Surgery* every candidate must have passed the examination for the degree of Bachelor of Medicine of the University of Durham and must have attended one course of lectures on Operative Surgery and one course on Applied Anatomy Candidates will be required to perform operations on the dead body and to give proof of practical knowledge of the use of surgical instruments and appliances

For the degrees of *Doctor of Medicine* and *Master of Surgery* a candidate must not be less than 24 years of age and must satisfy the University as to knowledge of Greek or German If he has not already satisfied the Matriculation Examiners in either Greek or German he must pass in one of these subjects at one of the ordinary matriculation examinations of the Newcastle division of the University He must also have obtained the degree of Bachelor of Surgery of the University of Durham and must have been engaged for at least two years subsequently to the date of acquirement of the degree of Bachelor of Surgery, in attendance on the practice of a recognised hospital, or in the naval or military services, or in medical or surgical practice The candidate for the M D degree must present an essay The subjects of examination for the M S are —Principles and Practice of Surgery, Surgical Pathology, Surgical Anatomy, Surgical Operations Clinical Surgery

Doctor of Medicine (without residence)—The University of Durham has instituted a special examination whereby the degree of Doctor of Medicine may be obtained without residence Candidates shall not be under 40 years of age and shall have been in active practice for 15 years as registered medical practitioners They shall produce certificates of moral character from three registered members of the medical profession The fee will be 50 guineas, of which 20 guineas will be retained if the candidate fails to satisfy the examiners

Candidates for any of the above degrees, diplomas or licence, must give at least 28 days' notice to Professor Howden, Secretary, College of Medicine, Newcastle-upon Tyne In the case of the M D (essay) examination candidates must send in their essays six weeks before the date of the examination

Professors—Principles and Practice of Medicine Sir G H Philipson, M D, Dr David Drummond and Sir T Oliver, M D Psychological Medicine Dr T W McDowall Surgery Mr James Rutherford Morison Mr Henry Brunton Angus, and Mr G Grey Turner Ophthalmology Mr John Dobson Wardale Midwifery and Diseases of Women and Children Professor R P Ranken Lyle Pathology Professor Stuart McDonald Medical Jurisprudence Professor Robert A Bolam Public Health Professor Thomas Eustace Hill Therapeutics Professor Thomas Beattie. Anatomy Professor Robert Howden, demonstrators, Dr James Dunlop Lickley and Dr E P Stibbe Applied Anatomy Mr John Clay Physiology Professor James Acworth Menzies Materia Medica and Pharmacology Dr W E Hume. Comparative Pathology and Bacteriology Professor H J Hutchens, lecturer, Mr Percy Charles W Laws, demonstrator (vacant), assistant demonstrator Dr George Hall

Scholarships and Prizes—In connexion with this University the following Scholarships and prizes are awarded —(a) (b), (c), and (d) Four Scholarships of £25 a year each, tenable for four years, the examination will be the September Matriculation Examination Candidates must take English Latin Arithmetic Euclid, Algebra Geography English History, with Greek or German, or both (See College Calendar for special books) Open to candidates desirous of being admitted as Medical Students The successful candidates must take out their entire curriculum at the University of Durham College of Medicine Newcastle upon Tyne (e) Pears Scholarship of £50 a year (when vacant) tenable for three years, Matriculation Examination —At the College of Medicine are (f) Dickinson Scholarship, interest on £400 and gold medal, examination in Medicine, Surgery Midwifery, and Pathology Open to full students of the College of Medicine who have passed the third M B Examination (g) Tulloch Scholarship interest on £400, examination in Elementary Anatomy Biology Chemistry, and Physics (h) Charlton Memorial Scholarship, interest on £700, examination in Medicine Open to full students of the College entered for the class on the Principles and Practice of Medicine (i) Gibb Scholarship interest on £500, awarded annually as a Scholarship in Pathology to full student who passes the best examination in that subject No student is eligible after completion of his curriculum (j) Luke Armstrong Memorial Scholarship interest on £680 Original Essay on some subject in Comparative Pathology (If no essay of sufficient merit be presented the scholarship may be awarded to the candidate who, in passing the first part of the Examination for the B Hy Degree, obtains the highest number of marks in Comparative Pathology during the year) Open to all Graduates in Medicine or Hygiene and candidates for these degrees who have spent six months at the University and whose age does not exceed 30 years (k) Stephen Scholarship interest on £1000, Original Essay on any Surgical subject Open to any graduate in Medicine or Surgery of the University or any student of the College

of Medicine Student's age must not exceed 30 years (l) Heath Scholarship, interest on £4000 For 1916 Original Essay on Genito-urinary Tuberculosis Its Etiology, Pathology, Methods of Spread Prognosis, and Treatment All Graduates in Medicine or Surgery of the University are eligible (m) Gibson Prize, interest on £250 stock, examination in subject of Midwifery and Diseases of Women and Children Open to students who have attended one course of lectures on Midwifery and Gynæcology (n) Outterson Wood Prize, interest on £250, in Psychological Medicine (o) Turnbull Prize and Medal, examination in Surface Anatomy Open to students at end of their second winter session —At the Royal Infirmary is (p) Goyder Memorial Scholarship, interest on £325, awarded annually to student who most distinguishes himself in Clinical Medicine and Clinical Surgery at the Royal Infirmary For further information apply to Professor Howden, Secretary of the College

Hygiene —The regulations with regard to the degrees in Sanitary Science will be found under the section on Public Health

---

THE COLLEGE OF MEDICINE, Newcastle-upon Tyne — Clinical instruction is given at the Royal Victoria Infirmary, containing 575 beds In it adequate accommodation is provided for the study of the various special subjects, in addition to the ordinary clinical work

NEWCASTLE-UPON TYNE ROYAL VICTORIA INFIRMARY — The Infirmary was founded in 1751, but has been entirely rebuilt, the new hospital being opened by His late Majesty King Edward VII in 1906 The number of beds is 575 The number of in patients annually is 9200 and of out-patients 69,000 The medical students of the University of Durham attend the practice of this hospital Clinical Lectures are delivered by the Physicians and Surgeons weekly and ward demonstrations are given daily Tutorial classes are held by the Assistant Physicians, Assistant Surgeons, and Surgical Registrars weekly, and demonstrations are given in the several out-patient departments daily Pathological demonstrations are given by the Pathologist daily or as opportunity occurs, and in the new buildings nothing has been spared in perfecting scientific equipment In addition to medical and surgical in patient and out-patient departments the following special departments are fully equipped for teaching students Ophthalmic Throat, Nose, and Ear Skin Gynæcological, and Electrical The hospital building contains the following laboratories 1 Special Pathological Laboratory attached to the post-mortem rooms 2 Bacteriological Laboratory, in which all clinical bacteriological investigations are carried out—opsonic indices estimated with a view to treatment by vaccines and serums, &c 3 There is in addition a Clinical Laboratory attached to each ward and to the out-patient department There are five operating theatres in use in the hospital The surgical practice is especially good The session opens on April 17th and Oct 2nd of each year Applications for detailed information should be made to the Acting Dean, Dr D Wells Patterson, at the hospital

Staff —Physicians Dr T Beattie, Dr W E Hume Dr Horsley Drummond and Dr Alfred Parkin Assistant Physicians Dr George Hall Dr T M Allison, Dr D W Patterson, and Dr T O Hunter Surgeons Mr A M Martin, Mr H B Angus, Mr J V W Rutherford, and Mr W G Richardson Assistant Surgeons Mr J W Leech, Mr John Clay, Mr G G Turner and Mr R J Willan Ophthalmic Surgeon Mr J D Wardale Assistant Surgeon Mr T Gowans Throat and Ear Department Surgeon Mr S S Whillis Assistant Surgeon Mr W F Wilson Gynæcological Department Dr R P R Lyle Skin Department Physician Dr Robert A Bolam Electrical Department Dr W D Arnison Pathologist Dr Stuart McDonald Bacteriologist Dr H J Slade Anæsthetists Dr F G Armstrong Dr W J Phillips, Dr H H Markham and Dr W Seymour Medical Registrars Miss H Gurney Dr J Leslie Wilson, and Dr Glen Davison Surgical Registrars Mr F C Pybus Mr Hamilton Drummond, Mr Hodgson and Mr Saint.

There are other institutions at which the student of medicine of the University of Durham can receive clinical instruction Practical Midwifery can be studied at the Newcastle Lying in Hospital Instruction is given in Psychological Medicine at the Northumberland County Asylum, Morpeth, by Professor T W McDowall, the Superintendent A special course of instruction is given in the City Hospital for Infectious Diseases by the Superintendent, the City Officer of Health, Dr Harold Kerr

NORTHUMBERLAND, DURHAM, AND NEWCASTLE INFIRMARY FOR DISEASES OF THE EYE St Mary s place, Newcastle-on Tyne —Consulting Surgeon Dr F Page Staff Surgeons Mr A S Percival and Mr H P Bennett Honorary Anæsthetist Dr O W Ogden Matron Miss C E Balfour Secretary Mr Richard Smith, 61 Westgate road, Newcastle on Tyne Out-patients, 11,526, in patients, 358

UNIVERSITY OF BIRMINGHAM

The University of Birmingham grants the degrees of M B, Ch B, M D, Ch M, and also a degree and a diploma in Public Health The course for the Bachelors' degrees extends over five years from the date of commencement of professional study As a rule the first four of these years must be spent in the University, but the Senate has power of recognising attendance at another University as part of the attendance qualifying for these degrees and of recognising examinations passed at such other Universities as exempting from the examinations in Chemistry Physics, and Elementary Biology In the case of such students at least three years must be spent in attendance upon classes at the University The fifth year may be spent at any other school or schools of medicine recognised by the University The students of the Medical Faculty can be members of the University Club the University Athletic Club, and the University Officers' Training Corps, while they possess a guild—the Guild of Undergraduates—which is designed to be a recognised medium of communication between the teachers and the taught The University Medical Society and the Dental Students' Society also offer opportunities of coöperation for mutual benefit

Degrees of Bachelor of Medicine and Bachelor of Surgery — The student must have passed either the Matriculation Examination of the University or one of the following examinations For the present the University will recognise any one of the following examinations, in lieu of its own Matriculation, in the case of medical students, provided always that such examination shall have included the subjects of Chemistry or Experimental Mechanics or some other branch of Experimental Physics, English, Mathematics, a foreign Language, and *either* another language *or* an additional science, and that all the subjects have been passed at one examination (a) the previous examination of the University of Cambridge, (b) Responsions of the University of Oxford, (c) the Preliminary or Matriculation Examination of a recognised University, (d) the (Higher) Certificate of the Oxford and Cambridge Examinations Board, (e) the Oxford or Cambridge Senior Local Examination, (f) the Senior Certificate of the Central Welsh Board A Matriculation Examination will commence on Sept 13th 1916 First Examination —Chemistry and Physics and Elementary Biology Second Examination — Anatomy and Physiology Third Examination —General Pathology and Bacteriology Materia Medica, and Practical Pharmacy Fourth Examination (at the end of the fourth year) —Forensic Medicine Toxicology, Public Health, Therapeutics and Special Pathology Two years' hospital work must have been accomplished Final Examination. — Medicine, Surgery, Midwifery, Diseases of Women, Mental Diseases, and Ophthalmology Attendance at a general hospital for a year after the passing of the fourth examination will be required, also attendance at a fever hospital three months maternity hospital one month, and lunatic asylum three months Vaccination instruction must be taken out and courses of Ophthalmology Medical and Surgical Anatomy and Operative Surgery

Degrees of Doctor of Medicine and Master of Surgery — At the end of one year from the date of having passed the final M B, Ch B examination the candidate will be eligible to present himself for the higher degrees of either Doctor of Medicine or Master of Surgery or both

Candidates for either of these degrees have to present a thesis embodying observations in some subject embraced in one of the departments of the medical curriculum and in addition pass a general examination in Principles and

tenable for three or five years (*c*) Bostock Scholarship, tenable for two or four years, and next to be awarded in June, 1919, £60 (*d*) Mabel Sharman Crawford Scholarship, tenable for four years, £20 a year (*e*) Mabel Webb Research Scholarship, tenable for one year and renewable, £30, Physiology, Chemistry, or Pathology (*f*) Fanny Butler Scholarship, tenable for four years, next award in September, 1918, £14 10*s* (*g*) John Byron Bursary, tenable from two to four years, for students already in the School requiring assistance for the prosecution of their medical studies, application to the Secretary by March 31st, next award in March, 1917, £20 (*h*) Ellen Walker Bursary tenable for two years, awarded to a student beginning fourth year of medical study, £25 a year (*j*) Helen Prideaux Scholarship, awarded every second year to a student who has become qualified during the two years immediately preceding the award, and to be spent in assisting the holder to further study, £40 (*k*) Agnes Guthrie Bursary, value £60, is offered annually to students who desire to pursue a full course of study for the Licentiateship in Dental Surgery (*l*) Dr Edith Pechey Phipson Post-graduate Scholarship of the value of £40, awarded annually in June It is open to all medical women, preferably coming from India, or going to work in India, for assistance in Post-graduate study (*m*) Sarah Holborn Scholarship, value £20 a year for three or five years, awarded every alternate year, next award in 1917 Two Richardson Kuhlmann Prizes are given each year, value £12 for proficiency in Clinical Obstetrics, value £8, for proficiency in senior subjects respectively Three Evans Prizes of £3 3*s*, £2 2*s*, and £1 1*s* are given in alternate years on the results of the class examination in Midwifery The Evans Prize for Operative Midwifery, value £5 5*s*, is awarded yearly The Edith Pechey Phipson Prize in Pharmacology, value £3 3*s*, is awarded annually There is also a small fund from which assistance can occasionally be given to students and to graduates who specially require pecuniary help Prizes and Certificates of Honour are awarded in each class at the end of the session

UNIVERSITY OF DURHAM

Two Diplomas, one Licence, and six degrees are conferred —viz, the Diploma in Public Health, Diploma in Psychiatry, the Licence in Dental Surgery, and the degrees of Bachelor of Medicine, Bachelor of Surgery, Master of Surgery, Doctor of Medicine Bachelor of Hygiene, and Doctor of Hygiene

For the degree of *Bachelor of Medicine* there are four professional examinations The subjects of the First Examination are—Elementary Anatomy Elementary Biology, Chemistry, and Physics The subjects of the Second Examination are—Anatomy and Physiology The subjects for the Third Examination are—Materia Medica and Pharmacy, Pathology Medical Jurisprudence, Public Health, and Pathology and Elementary Bacteriology The subjects of the Fourth Examination are—Medicine, Clinical Medicine and Psychological Medicine, Surgery and Clinical Surgery Midwifery and Gynæcology, Therapeutics, and Diseases of the Skin of the Throat, Nose, and Ear and of Children

It is required that at least one of the five years of professional education shall be spent in attendance at the University College of Medicine Newcastle upon Tyne Candidates who have passed the First and Second Examinations of the University will be exempt from First and Second Examinations of the Conjoint Board

For the degree of *Bachelor of Surgery* every candidate must have passed the examination for the degree of Bachelor of Medicine of the University of Durham and must have attended one course of lectures on Operative Surgery and one course on Applied Anatomy Candidates will be required to perform operations on the dead body and to give proof of practical knowledge of the use of surgical instruments and appliances

For the degrees of *Doctor of Medicine* and *Master of Surgery* a candidate must not be less than 24 years of age and must satisfy the University as to knowledge of Greek or German If he has not already satisfied the Matriculation Examiners in either Greek or German he must pass in one of these subjects at one of the ordinary matriculation examinations of the Newcastle division of the University He must also have obtained the degree of Bachelor of Surgery of the University of Durham and must have been engaged for at least two years subsequently to the date of acquirement of the degree of Bachelor of Surgery, in attendance on the practice of a recognised hospital, or in the naval or military services, or in medical or surgical practice The candidate for the M D degree must present an essay The subjects of examination for the M S are —Principles and Practice of Surgery, Surgical Pathology, Surgical Anatomy, Surgical Operations Clinical Surgery

Doctor of Medicine (without residence)—The University of Durham has instituted a special examination whereby the degree of Doctor of Medicine may be obtained without residence Candidates shall not be under 40 years of age and shall have been in active practice for 15 years as registered medical practitioners They shall produce certificates of moral character from three registered members of the medical profession The fee will be 50 guineas, of which 20 guineas will be retained if the candidate fails to satisfy the examiners

Candidates for any of the above degrees, diplomas or licence, must give at least 28 days' notice to Professor Howden, Secretary, College of Medicine, Newcastle-upon Tyne In the case of the M D (essay) examination candidates must send in their essays six weeks before the date of the examination

Professors—Principles and Practice of Medicine Sir G H Philipson, M D, Dr David Drummond and Sir T Oliver M D Psychological Medicine Dr T W McDowall. Surgery Mr James Rutherford Morison, Mr Henry Brunton Angus and Mr G Grey Turner Ophthalmology Mr John Dobson Wardale Midwifery and Diseases of Women and Children Professor R P Ranken Lyle Pathology Professor Stuart McDonald Medical Jurisprudence Professor Robert A Bolam Public Health Professor Thomas Eustace Hill Therapeutics Professor Thomas Beattie Anatomy Professor Robert Howden, demonstrators D James Dunlop Lickley and Dr E P Stibbe Applied Anatomy Mr John Clay Physiology Professor James Acworth Menzies Materia Medica and Pharmacology Dr W E Hume Comparative Pathology and Bacteriology Professor H J Hutchens, lecturer, Mr Percy Charles W Laws, demonstrator (vacant), assistant demonstrator Dr George Hall

Scholarships and Prizes—In connexion with this University the following Scholarships and prizes are awarded —(*a*) (*b*) (*c*) and (*d*) Four Scholarships of £25 a year each, tenable for four years, the examination will be the September Matriculation Examination Candidates must take English Latin, Arithmetic, Euclid, Algebra Geography English History, with Greek or German, or both (See College Calendar for special books) Open to candidates desirous of being admitted as Medical Students The successful candidates must take out their entire curriculum at the University of Durham College of Medicine Newcastle upon Tyne (*e*) Pears Scholarship of £50 a year (when vacant) tenable for three years, Matriculation Examination —At the College of Medicine are (*f*) Dickinson Scholarship, interest on £400 and gold medal, examination in Medicine, Surgery, Midwifery, and Pathology Open to full students of the College of Medicine who have passed the third M B Examination (*g*) Tulloch Scholarship interest on £400, examination in Elementary Anatomy Biology Chemistry, and Physics (*h*) Charlton Memorial Scholarship, interest on £700, examination in Medicine Open to full students of the College entered for the class on the Principles and Practice of Medicine (*i*) Gibb Scholarship interest on £500, awarded annually as a Scholarship in Pathology to full student who passes the best examination in that subject No student is eligible after completion of his curriculum (*j*) Luke Armstrong Memorial Scholarship interest on £680 Original Essay on some subject in Comparative Pathology (If no essay of sufficient merit be presented the scholarship may be awarded to the candidate who, in passing the first part of the Examination for the B Hy Degree, obtains the highest number of marks in Comparative Pathology during the year) Open to all Graduates in Medicine or Hygiene and candidates for these degrees who have spent six months at the University and whose age does not exceed 30 years (*l*) Stephen [illegible] Scholarship interest on £1000, Original Essay on any Surgical subject Open to any graduate in Medicine or Surgery of the University or any student of the C[illegible]

George Heaton Honorary Consulting Surgeon Mr D C Lloyd Owen Surgeons Mr E W Wood White, Mr J Jameson Evans, and Mr W H Fulford Eales Assistant Surgeons Mr T Harrison Butler, Mr R Beatson Hird, and Mr D Priestley Smith Dental Surgeon Mr John Westwood. Anæsthetist Dr S W Haynes Radiographers Mr Hall Edwards and Mr Emrys-Jones Pathologist Dr E W Assinder This hospital possesses 108 beds and there is an average daily attendance of out-patients of over 250 This institution is recognised by Universities and the Royal College of Surgeons, England, and Royal College of Physicians, London, as an ophthalmic hospital at which clinical instruction in ophthalmology may be received Students attending for a period of three months will be granted certificates which will qualify for the University and Conjoint Board examinations

UNIVERSITY OF LIVERPOOL.

The degrees in the Faculty of Medicine are Bachelor of Medicine and Bachelor of Surgery (M B and Ch B) Doctor of Medicine (M D), Master of Surgery (Ch M), and Master of Hygiene (M H)

Degrees of Bachelor of Medicine and Bachelor of Surgery —Candidates for the degrees of Bachelor of Medicine and of Surgery must have attained the age of 21 years on the day of graduation At least two of the five years of medical study must have been passed in the University, and one year at least must have been passed in the University subsequently to the date of passing the First Examination The other three years may be passed at any college or medical school recognised for this purpose by the University Candidates must pass three examinations entitled respectively the First Examination the Second Examination, and the Final Examination The fee is £5 for each examination The subjects of the First Examination are (1) Chemistry, Inorganic, Organic, and Physical, (2) Biology (Zoology and Botany), and (3) Physics. The examination is divided into two parts—namely (1) Chemistry and Physics, and (2) Biology, and candidates may present themselves in these parts separately The subjects of the Second Examination are (*a*) Anatomy and Physiology (including Physiological Chemistry and Histology), and (*b*) Materia Medica Pharmacy, and Pharmacology Candidates may present themselves in (*a*) or (*b*) separately The subjects for the Final Examination are (1) General Pathology and Morbid Anatomy, (2) Therapeutics, (3) Forensic Medicine and Toxicology, (4) Public Health, (5) Obstetrics and Diseases of Women (6) Surgery Systematic Clinical Operative and Practical including Ophthalmology, and (7) Medicine Systematic and Clinical including Mental Diseases and Diseases of Children The Final Examination is divided into three parts the first consisting of subject (1) the second of subjects (2) (3) and (4) the third of subjects (5), (6) and (7) Candidates may present themselves in these parts separately Candidates for the third part must have completed the fifth year of medical study

Degrees of Doctor of Medicine and Master of Surgery — No candidate will be admitted to the degree of Doctor of Medicine or Master of Surgery unless he has previously received the Degrees of Bachelor of Medicine and Bachelor of Surgery, and at least one year has elapsed since he passed the examinations for those degrees Candidates for the degree of Doctor of Medicine are required to present a dissertation embodying the results of personal observations or original research either in some department of medicine or of some science directly relative to medicine provided always that original work published in scientific journals or separately shall be admissible in lieu of or in addition to a dissertation specially written for the degree

Professors—Inorganic Chemistry E C C Baly, F R S Physical Chemistry W C McC Lewis, M A. D Sc Organic Chemistry R Robinson D Sc Physiology J S Macdonald, B A. Physics L R Wilberforce M.A Natural History W A Herdman, D Sc, F R S Botany R. J H Gibson, M A. Anatomy A Melville Paterson, M D Medicine T Robinson Glynn M D Surgery Rushton Parker F R C S Regional Surgery W Thelwall Thomas Ch.M F R.C S Pathology Ernest Glynn, M A. M D Midwifery and Gynæcology H Briggs M D Therapeutics J H Abram M D Hygiene E W Hope D Sc. Forensic Medicine R. J M Buchanan, M D Tropical Medicine J W W Stephens, B A, M D Tropical Sanitation Major Sir Ronald Ross C B, F R S Bio Chemistry W Ramsden, D M Entomology: R Newstead, M Sc A L S F R S Bacteriology J M Beattie, M A, M D Parasitology Warrington Yorke, M D

At this University the following Scholarships and Fellowships and Prizes are awarded —(*a*) and (*b*) Robert Gee Entrance Scholarships, two annually, of £25 each, tenable for two years, Joint Matriculation Board Examination held in July, open to First M B Course Students, (*c*) Lyon Jones Scholarship, No 1, of £21 per annum, tenable for two years, Competitive Examination among Junior Students in First M B Subjects, Perpetual Course at the University, (*d*) Lyon-Jones Scholarship, No 2, of £21, Competitive Examination among Senior Students in Anatomy, Physiology Pharmacology, and Materia Medica, (*e*) Derby Exhibition of £15 Competitive Examination among Fourth- or Fifth year Students in Clinical Subjects, and Clinical School Exhibition of £15 annually for Fourth or Fifth year students, (*f*) University Scholarship of £25 for one year, awarded on results of Second Examination for the degrees, (*g*) Holt Fellowships Physiology and Pathology of £100 each for one year, (*h*) Gee Fellowship, Anatomy, of £100 for one year, (*i*) Alexander Fellowship, Bacteriology and Pathology, of £100, for one year, (*j*) Johnston Colonial Fellowship Bio Chemistry, of £100, for one year, (*k*) John W Garrett International Fellowship, Bacteriology, of £100, for one year, (*l*) Thelwall Thomas Fellowship, Surgical Pathology, of £100 for one year, (*m*) Ethel Boyce Fellowship in Gynæcological Pathology, of £100 for one year, numerous prizes and medals

Medical School Buildings —Medical research has also been endowed with several new laboratories in which students can pursue research work after graduation All the laboratories and class rooms are situated close together, communicating with one another, and are made up of four large blocks of buildings which form one side of the College quadrangle There are the Johnston Laboratories for Experimental Medicine, Bio-Chemistry, and Tropical Medicine, the Medical School for Anatomy Surgery, Toxicology, and Ophthalmology, and the Thompson Yates Laboratories for Physiology and Pathology

Clinical Instruction —The Clinical School of the University now consists of four general hospitals—the Royal Infirmary, the David Lewis Northern Hospital, the Royal Southern Hospital, and the Stanley Hospital, and of five special hospitals —the Eye and Ear Infirmary the Hospital for Women, the Infirmary for Children St Paul's Eye Hospital and St. George's Hospital for Skin Diseases These hospitals contain in all a total of about 1134 beds. The organisation of these hospitals to form one teaching institution provides the medical student and the medical practitioner with a field for clinical education and study which is unrivalled in extent in the United Kingdom All the hospitals are within easy access of the University There are a large number of appointments to house physicianships and surgeonships both at the general and special hospitals which are open to qualified students of the school

School of Veterinary Science —There is a school of Veterinary Science in connexion with the University which provides full courses of instruction for the M R C V S Degrees of B V Sc M V Sc, and D V Sc, together with a diploma in Veterinary Hygiene, are also granted by the University

Public Health Department —This is located in a separate building known as Ashton Hall in which full courses of instruction are given to students for the Diplomas and Degrees of the University and of other Examining Boards

Special Diplomas —The University has instituted diplomas in Anatomy Bacteriology Bio-chemistry and Parasitology A special course of study of three terms duration is required in the subject chosen for the diploma and allied subjects

Prospectuses and further information may be had on application to the Dean of the Faculty of Medicine University of Liverpool

Staff of the Royal Infirmary —Consulting Physicians Dr T R Glynn Dr R Caton and Sir James Barr Physicians Dr T R Bradshaw Dr J Hill Abram and Dr R J M Buchanan Assistant Physicians Dr John Hay and Dr W Barnett Warrington Consulting Surgeons Mr Rushton Parker and Mr F T Paul Surgeons Mr R A Bickersteth

Practice of Medicine for the M D , and general examination in Principles and Practice of Surgery including operations on the cadaver for the M Ch It will be in the power of the Board of Examiners to exempt from the practical parts of the examination a candidate whose thesis is of exceptional merit from any part of these examinations

Fees —Matriculation, £2, First Examination, £2, Second Examination, £2, Third Examination £2, Fourth Examination £2, Final Examination, £8, M D or Ch M , £10

Professors—Physics (Vacant) Chemistry P F Frankland, Ph D F R S Elementary Biology F W Gamble D Sc F R S Medicine R Saundby M D F R C P and Otto J Kauffmann M D F R C P Surgery Wm F Haslam, M B , F R C S and Charles Leedham Green, M B , Ch M F R C S Anatomy Peter Thompson M D (Dean of the Medical Faculty) Physiology E W Wace Carlier M D Therapeutics Douglas Stanley, M D Forensic Medicine J T J Morrison F R C S Hygiene and Public Health A Bostock Hill, M D Midwifery and Diseases of Women Thomas Wilson Ch M , M D , F R C S Pathology R F C Leith F R C P Edin Lecturers—Lunacy and Mental Disease P T Hughes Ophthalmology J Jameson Evans M D , F R C S Operative Surgery Geo Heaton, F R C S Infant Hygiene and Children s Diseases L G Parsons, M D , M R C P

At the University of Birmingham the following Scholarships are awarded —(*a*) Myers Travelling Studentship of £150 tenable for one year, awarded by vote of committee to M B Ch B Birm., B Sc candidates tenable at some University or Hospital not in Great Britain or Ireland , (*b*) Ingleby Scholarship of £10, awarded to the candidate at Final Examination obtaining highest "first-class' marks in the subjects of Midwifery and Diseases of Women , (*c*) Sydenham Scholarship of £42 tenable for three years, award of Council to orphan sons of medical practitioners , (*d*) Sands Cox Scholarship of £42 tenable for three years, awarded to the candidate, not being more than 19 years of age taking the highest marks at the July Matriculation , (*e*) Dental Scholarship of £37 10*s* , Open Competitive Examination in subjects learned during apprenticeship , (*f*) (*g*), (*h*) and (*i*) Four Queen s Scholarships of £10 10*s* each In the Second and Fourth Examinations the Scholarship is awarded respectively to the student taking the first place and obtaining 'first-class' marks In the third Examination the Scholarship is awarded to the student obtaining the highest first-class marks in Pathology and Bacteriology, provided that such student passes at the same examination in the subjects of Materia Medica and Practical Pharmacy In the Final Examination the Scholarship is awarded to the candidate taking the first place in the examination—that is obtaining the greatest aggregate number of marks—provided that in each of the subjects of Medicine Surgery, and Midwifery he gains not less than 60 per cent of the total available marks , (*j*) George Henry Marshall Scholarship of £10, awarded annually for the encouragement of Research Work in Ophthalmology , and (*k*) Russell Memorial Prize a prize of books value about £2 awarded annually to the student who not being of more than six years standing as a student of the School of Medicine of the University shall pass the best examination in the subject of Nervous Diseases

Clinical Instruction —The medical students of the University receive their clinical instruction by attending the amalgamated practice of the General Hospital and the Queen s Hospital details of which follow

The clinical instruction of the Birmingham medical students is carried on under the direction of the University Clinical Board The hospitals present an excellent field for clinical work possessing more than 500 beds treating annually over 8000 in patients and 100 000 out patients The students spend part of their curriculum in each hospital and thus have every opportunity of acquiring a varied, full and practical knowledge of their professional work The curriculum is adapted in the first place to meet the needs of the students of the University of Birmingham but it is also well adapted to the requirements of students preparing for the examinations of all other universities and licensing bodies At the General Hospital there are open to the students the following appointments A resident medical officer elected annually (£100) a resident surgical officer elected annually and eligible for re election for three years (£100), a resident pathologist elected for six months (£50), three surgical casualty officers, elected annually and eligible for re-election (£50), three house physicians and four house surgeons hold office for six months, receiving board residence and salaries at the rate of £50 a year, two house surgeons to the gynæcological, ophthalmic and aural departments are elected every six months, receiving board residence and a salary of £50 a year, two assistant house surgeons are elected every three months, receiving board residence, and salaries at the rate of £40 a year, a resident medical officer at the Jaffray Hospital who is elected annually but is eligible for re election, and who receives £150 a year, and a resident medical assistant at this hospital, who is not necessarily qualified, is provided with board and residence and holds office for three months At the Queen s Hospital there are open to the student the following appointments Three house physicians three house surgeons and one obstetric and ophthalmic house surgeon, who hold office for six months and have salaries at the rate of £50 a year Thirty eight other appointments of varying value are at the City Workhouse and Workhouse Infirmary, at the Birmingham General and Branch Dispensaries at the Birmingham Lunatic Asylums at the City Fever Hospitals at the Children's Hospital at the Birmingham and Midland Eye Hospital at the Orthopædic and Spinal Hospital at the Maternity Hospital, and at the Ear and Throat Hospital

THE BIRMINGHAM GENERAL HOSPITAL —351 beds in daily use, 5500 in patients per annum Special wards for children, gynæcological septic and infectious cases, special beds for eye ear, and skin cases 50 879 out-patients per annum Laboratories for bacteriology and morbid histology Separate rooms adjoin the medical and surgical wards for clinical pathology Five operating theatres (one for out patients) all designed and fitted on the most modern lines In addition to clinical teaching given in the wards and out patient department by the honorary staff medical and surgical tutorial classes are held for senior and junior students Clinical instruction in all the special departments The Jaffray Branch Hospital contains 54 beds Consulting Surgeon Mr Gilbert Barling

Staff —Consulting Physician Dr Robert Saundby Consulting Obstetric Officer Dr Edward Malins Physicians Dr T Stacey Wilson Dr T Sydney Short Dr J W Russell and Dr A Stanley Barnes Surgeons Mr William F Haslam Mr George Heaton Mr A Lucas and Mr Leonard P Gamgee Obstetric Physician Dr Thomas Wilson Aural Surgeon and Laryngologist (Vacant) Physician in Charge of Skin Department Dr A Douglas Heath Ophthalmic Surgeon Dr R Benson Hirst Assistant Physicians Dr William H Wynn Dr J E H Sawyer, Dr L G Parsons and Dr A D Wilkinson Assistant Surgeons Mr Frank Barnes Mr Sermon Barling, Mr E Musgrave Woodman Mr H H Sampson and Mr G P Mills Assistant Obstetric Officer Mr H B Whitehouse Anæsthetists Dr Sydney Haynes Dr W J McCardie and Mr R H B Whitaker Surgical Photographers and Radiographers Mr J Hall Edwards and Mr F Emrys Jones Dental Surgeon Mr R H A Storey

THE QUEEN S HOSPITAL —Similar arrangements for clinical teaching are made here and the maternal also is excellent Ward and tutorial classes are regularly conducted by the staff there are daily clinics in the out patient department while teaching duties are definitely assigned to the house physicians and house surgeons There are also special departments for gynæcology and ophthalmology

Staff —Consulting Physicians Sir James Sawyer D C W Suckling and Dr A H Carter Consulting Surgeons Mr Frank Marsh and Mr Bennett May Consulting Ophthalmic Surgeon Mr Priestley Smith Physicians Dr O J Kauffmann Dr Douglas Stanley and Dr J G Emanuel Surgeons Mr J J J Morrison Mr C A Leedham Green and Mr W Pullington Obstetric Officer Dr C F Purslow Ophthalmic Surgeon Mr William Allport Physicians for Out patients Dr L G J Mayer and Dr J Ball Surgeons for Out patients Mr A W Nuthall Mr B J Ward and Mr Lorram A Pilcher Pathologist Dr L Ball Radiographer D Harold Jones Anæsthetist Mr L Kirkby Thomas

BIRMINGHAM AND MIDLAND EYE HOSPITAL Church street Birmingham —Honorary Consulting Physician Dr J Saundby Honorary Consulting General Surgeon Mr

The Medical School.—This medical school is located in a large building, which forms a part of the University. It is provided with large dissecting rooms, physiological laboratories, private laboratories, and work-rooms, besides lecture-rooms, a museum, and a library. In order to give the fullest possible opportunities for teaching and investigation in the departments of Anatomy, Physiology, Pathology and Materia Medica, a large extension of the school buildings was made in 1895. A special laboratory, under the charge of Dr. T. Graham Brown, is equipped for experimental work on the central nervous system. In the pathological laboratories ample provision is made for the teaching of pathology and bacteriology and for the prosecution of original research. The Helen Swindells Laboratory under the charge of Dr. Powell White, is specially equipped for cancer research and investigation in general pathology. In the public health department, which is lodged in a separate institute in York Place, near the Royal Infirmary, suitable laboratory accommodation is provided for the study of sanitary chemistry, physics and practical bacteriology in the departments of chemistry and physics and in that of pathology.

Clinical Studies.—The clinical and practical departments of medical study are taught partly in the Medical School and partly in the Royal Infirmary and St. Mary's Hospitals for Women and Children, as well as in a fever hospital, a lunatic asylum and a convalescent home. Medical and Surgical Clinical Classes are conducted in the Infirmary which together with the associated hospitals at Cheadle contains 1158 beds, and separate instruction is afforded in the elements of Medical and Surgical Physical Diagnosis in Obstetric Medicine, Ophthalmic Surgery, and Pathological Anatomy by the different members of the staff of the Medical School and Infirmary.

Clinical Instruction.—THE MANCHESTER ROYAL INFIRMARY.—The new Royal Infirmary has been built on the pavilion system near the University between the recently enlarged Eye Hospital and the new St. Mary's Hospital for Women and Children, and has accommodation for 836 (including 422 temporary military beds). Excluding military beds 46 are allotted to the Special and Emergency Departments, the 360 remaining beds are allocated as follows: 120 for medical practice and 240 for surgical practice (144 for men and 96 for women and children). The medical side consists of five units, each unit having a testing room for the scientific investigation of morbid products and a class-room. The surgical beds are also arranged in five units each unit having its own operation theatre with anæsthetising, recovery, sterilising, testing and apparatus rooms, and its own class room attached. Of these units all are occupied. The fine educational block provides very handsomely for the wants and comforts of the students, there being separate suites of rooms for the men and the women, and also a large common reading room, a lecture theatre, and a museum. The present annual average number of in patients is 10,000, of out- and home patients 32,000, and the list of casualties in the accident room has averaged 22,000 per annum. About 3000 operations are performed annually in the operation theatres. Associated with the infirmary are (1) the Convalescent Hospital at Cheadle containing 136 beds, (2) the Royal Lunatic Hospital at Cheadle, accommodating with its branches 430 patients, and (3) the Central Branch in the city for casualty and out-patient work, and 60 temporary military beds. The Associated Hospitals thus contain 1402 beds and are under the same management. Women students are admitted to the practice of the Infirmary on the same terms as men.

Fees.—Medical Practice: Three months 5 guineas, six months 8 guineas, 12 months 12 guineas, full period required by the Examining Boards 42 guineas.

Two Entrance Scholarships in Medicine of the value of £100 each are offered annually by the Council of the Manchester University and the Medical Board of the Manchester Royal Infirmary for proficiency in Arts and Science subjects respectively. Other scholarships and prizes are in the College Syllabus. Numerous annual appointments and junior appointments may be held by those who have attended the practice of the Infirmary.

Staff.—Consulting Physicians: Dr. Graham Steell, Dr. Judson S. Bury and Dr. A. T. Wilkinson. Physicians: Dr. F. S. Reynolds, Dr. G. R. Murray, Dr. R. T. Williamson, Dr. E. M. Brockbank, and Dr. E. N. Cunliffe. Assistant Physicians: Dr. F. Craven Moore, Dr. A. Ramsbottom, Dr. E. B. Leech, Dr. F. E. Tylecote and Dr. C. E. Melland. Professor of Pathology: Dr. H. R. Dean. Pathologist: Dr. W. B. Anderton. Consulting Surgeons: Mr. F. A. Southam and Mr. G. A. Wright. Surgeons: Mr. W. Thorburn, Mr. J. W. Smith, Mr. A. H. Burgess, Mr. J. H. Ray, and Mr. E. D. Telford. Assistant Surgeons: Mr. C. Roberts, Mr. P. R. Wrigley, Mr. H. H. Rayner, Mr. W. H. Hey, and Mr. J. P. Buckley. Anæsthetist: Mr. Alexander Wilson. Consulting Obstetric Physician: Dr. Lloyd Roberts. Gynæcological Surgeon: Dr. A. Donald. Assistant Gynæcological Surgeon: Dr. W. E. Fothergill. Ophthalmic Surgeon: Dr. A. Hill Griffith. Aural Surgeon: Sir William Milligan. Assistant Aural Surgeon: Mr. F. H. Westmacott. Consulting Dental Surgeon: Mr. W. A. Hooton. Dental Surgeon: Mr. E. G. Long. Dean: Dr. E. M. Brockbank. Resident Medical Officer: Dr. W. J. Reid. Resident Surgical Officer: Mr. G. B. Warburton. Pathological Registrar: Dr. W. B. Anderton. Medical Registrar: Dr. D. T. Harris. Surgical Registrar: Mr. Howard Buck. Director of the Clinical Laboratory: Dr. G. E. Loveday. Assistant Director of the Clinical Laboratory: Miss Hilda K. Brade. Anæsthetists: Mr. S. R. Wilson, Mr. Edward Moir, Mr. E. Falkner Hill, Mr. T. Coogan, Mr. G. Benton, and Miss Mabel E. May. Assistant Medical Officers: Dr. Core, Dr. C. E. Lea, and Dr. J. F. Ward. Assistant Surgical Officers: Mr. W. R. Douglas, Mr. E. E. Hughes and Mr. Howard Buck. Surgical Tutor: Mr. W. R. Douglas. Medical Officer for Home Patients: Dr. George Ashton. Medical Officer for Radiography and Electricity Department: Dr. A. E. Barclay. Resident Medical Officer of the Convalescent Hospital, Cheadle: Dr. T. A. Black. Resident Superintendent of the Royal Lunatic Hospital at Cheadle: Mr. W. Scowcroft. Medical Officer, Central Branch: Mr. J. S. Chorlton. General Superintendent and Secretary: Mr. F. G. Hazell.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury, Gartside-street, Manchester, and St. Anne's-on-the-Sea.—The hospital contains 188 beds and 24 in the Convalescent Home, St. Anne's-on-the-Sea. The medical staff visit the hospital daily at 10 A.M. Clinical instruction is given by the medical staff at the Hospital and Dispensary. Out-patients are seen daily at 9 A.M. at the new Out-patient Department, Gartside-street, Manchester. Consulting Physician: Dr. Hutton. Physicians: Dr. Heywood, Dr. Lapage, and Dr. Ashby. Surgeons: Mr. C. Roberts, Mr. H. H. Rayner, and Mr. John Morley. Honorary Consulting Surgeons: Mr. G. A. Wright and Mr. J. Howson Ray. Honorary Consulting Aural Surgeon: Mr. F. H. Westmacott. Surgeon for Throat, Nose, and Ear Diseases: Mr. Arnold Jones. Honorary Ophthalmic Surgeon: Mr. J. Gray Clegg. Pathologist: Mr. A. H. Miller. Anæsthetists: Mr. E. Moir and Mr. S. R. Wilson. Honorary Dental Surgeon: Mr. E. A. T. Green. Resident Medical Officers: Miss Nesta Perry and Miss D. Potts. Medical Officers at the Dispensary: Mr. S. N. Mitra, Mr. K. B. Pinson and Mr. A. W. Walsh. Medical Officer X Ray Department: Dr. W. J. S. Bythell. During 1915 there were 2719 in patients, and 25,101 new out-patients were under treatment at the Dispensary, and there were 96,275 attendances made by out-patients. Secretary: Mr. W. M. Humphry.

THE MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Park-place, Cheetham Hill road, Manchester.—The hospital contains 70 beds. Out-patients are seen daily from 8.30 to 10 A.M. Honorary Consulting Physicians: Dr. W. N. Maccall, Dr. T. C. Railton, and Dr. J. J. Cox. Honorary Consulting Surgeons: Mr. Frederick A. Southam and Dr. A. W. W. Lea. Honorary Physician for Women: Dr. T. Arthur Helme. Honorary Surgeon for Women: Dr. G. W. Fitz Gerald. Honorary Physicians for Children: Dr. A. A. Mumford, Dr. A. C. Sturrock and Dr. C. Chisholm. Honorary Assistant Surgeon for Women: Dr. D. Dougal. Honorary Surgeon for Children: Mr. R. Ollerenshaw. Honorary Ophthalmic Surgeon: Dr. H. H. McNabb. Honorary Anæsthetists: Mr. G. A. Barrow, Dr. C. H. Lee and Dr. D. H. Paul. Honorary Clinical Pathologist: Dr. J. Staveley-Dick. Pathologist: Dr. A. H. Miller. Assistant Medical Officers: Mr. R. W. Walsh and Dr. R. C. Holt. House Surgeon: (Temporarily filled).

Mr W Thelwall Thomas, and Mr Litler Jones Assistant Surgeons Mr R E Kelly Mr F A G Jeans, and Mr H F Woolfenden Consulting Gynæcological Surgeon Mr T B Grimsdale. Gynæcological Surgeon Mr W Blair-Bell Ophthalmic Surgeon Mr T H. Bickerton Surgeon to the Throat Department Mr Thomas Guthrie. Physician to the Skin Department Dr L Roberts Lock Department Dr F P Wilson X Ray and Radium Departments Dr C Thurston Holland Dental Surgeon Dr S Hallam Chemical Pathologist Dr Walter Ramsden Pathologist Dr E E Glynn Anæsthetists Mr W Fingland, Mr F W Bailey, Mr H. Armstrong, Mr A. J O'Leary Dr Mona Roberts, Mr Bennett Jones, and Mr G F R Smith

Staff of the David Lewis Northern Hospital—Physician Dr John Owen Assistant Physician Dr J M Bligh. Surgeons Mr K W Monsarrat and Mr G C. E. Simpson. Assistant Surgeons Mr J H Rawlinson and Mr T P McMurray Consulting Neurologist Dr W B Warrington. Consulting Ophthalmic Surgeon Mr A. Nimmo Walker Consulting Gynæcological Surgeon Mr H Leith Murray Consulting Aural Surgeon and Laryngologist Dr Hugh E Jones. Consulting Dental Surgeon Mr Leslie Councell. Surgeon in Charge of Orthopædics and Massage Dr W H Broad Anæsthetists Dr Robert Stevenson, Dr H J Knox Dr W R Pearce, and Mr A J W Cunningham. Pathologist Dr H S Pemberton Medical Officer in Charge of Finsen Light and Roentgen Ray Department Dr W C Oram Bacteriologist Dr L S Ashcroft.

Women are now accepted for resident appointments.

Staff of the Royal Southern Hospital—Consulting Physician Dr W Williams Consulting Surgeon Mr W Alexander Consulting Bacteriologist Professor J M Beattie. Honorary Physicians Dr C J Macalister and Dr J L Roberts. Honorary Surgeons Mr R Jones, Mr G P Newbolt, and Mr Douglas-Crawford. Honorary Assistant Surgeons Mr T R W Armour and Mr O H Williams. Honorary Dermatologist Dr F H Barendt. Honorary Ophthalmic Surgeon Mr R J Hamilton Honorary Laryngologist Dr W Permewan Honorary Assistant Laryngologist Dr W Sanderson Radiologist Dr D Morgan Honorary Dental Surgeon Mr L Osborn Anæsthetists Dr F M Gardner Medwin Dr W J Bennett Jones Dr G F R Smith, and Dr T E Jones.

Staff of the Stanley Hospital—Consulting Physicians Dr R. I Richardson and Dr W Whitford. Physicians Dr A. G Gullan and Dr J Murray Bligh Surgeons Mr F C Larkin and Mr A. J Evans Gynæcology Miss F Ivens, M B, M S Ophthalmic Physician Dr J Grimshaw Laryngologist Dr J E McDougall Dentist Mr J Woodford Williams

THE VICTORIA UNIVERSITY OF MANCHESTER.

Four degrees in Medicine and Surgery are conferred by the University—viz., Bachelor of Medicine and Bachelor of Surgery (M B and Ch B.), Doctor of Medicine (M D), and Master of Surgery (Ch M) A Diploma in Psychological Medicine is awarded by examination to registered medical practitioners.

Degrees of Bachelor of Medicine and Bachelor of Surgery—Before admission to the degree of M B or Ch.B candidates are required to present certificates that they will have attained the age of 21 years on the day of graduation and that they have pursued the courses of study required by the University Regulations during a period of not less than five years subsequently to the date of their registration by the General Medical Council, two of such years having been passed in the University and one year at least having been passed in the University subsequently to the date of passing the first M B Examination All candidates for the degrees of Bachelor of Medicine and Bachelor of Surgery are required to satisfy the examiners in the several subjects of the following examinations the First Examination the Second Examination, the Third Examination and the Final Examination

The First Examination—The subjects of examination are as follows—(1) Inorganic Chemistry and Physics, (2) Biology, and (3) Elementary Organic Chemistry and Bio-Chemistry Candidates must have attended during at least one year courses both of lectures and of laboratory work in each of the above-named subjects The Examination is divided into three parts Part 1, Inorganic Chemistry and Physics, Part 2, Biology, Part 3, Elementary Organic Chemistry and Bio-Chemistry, and the candidates may pass in these parts separately under certain conditions.

The Second Examination—The subjects of examination are as follows—(1) Anatomy, (2) Physiology, including Physiological Chemistry and Histology Candidates may pass in (1) and (2) separately under certain conditions.

The Third Examination—(1) Pathology, (2) Pharmacology and Therapeutics, (3) Hygiene. These subjects may be taken separately under certain conditions

The Final Examination—The subjects of examination are as follows—(1) Medicine, Systematic and Clinical (including Mental Diseases and Diseases of Children), (2) Surgery, Systematic, Clinical, and Practical, (3) Obstetrics and Gynæcology (including Clinical and Practical), (4) Forensic Medicine (including an Oral Examination). These subjects may be taken separately under certain conditions

Candidates for the Final Examination must have completed the fifth year of medical study

Degree of Doctor of Medicine—Candidates are not eligible for the degree of Doctor of Medicine unless they have previously received the degrees of Bachelor of Medicine and Bachelor of Surgery and at least one year has elapsed since they passed the examination for those degrees *Candidates may elect either (1) to present an original dissertation*, or (2) to undergo an examination The dissertation must embody the results of personal observation or original research, either in some department of medicine or of some science directly relative to medicine The examination, which will be partly written, partly practical, is in the Principles and Practice of Medicine, in Pathology and in some other subject to be selected by the candidate.

Degree of Master of Surgery—Candidates are not eligible for the degree of Master of Surgery unless they have previously received the degrees of Bachelor of Medicine and Bachelor of Surgery and at least one year has elapsed since they passed the examination for those degrees The subjects of examination are as follows (1) Surgical Anatomy, (2) Surgery, (3) Operative Surgery, (4) Clinical Surgery, (5) Ophthalmology, and (6) Pathology and Bacteriology

Professors—Physics Sir E Rutherford D Sc., LL.D F R.S Chemistry H B Dixon M A., F R.S Organic Chemistry Arthur Lapworth D Sc., F R S Zoology S J Hickson, D Sc., F R.S Botany F E. Weiss, D Sc. Cryptogamic Botany W H Lang M B, D Sc., F R.S. Physiology W Stirling M D, LL.D D Sc. Clinical Medicine E S Reynolds M D, B Sc. F R C P Anatomy G Elliot Smith, M A., M D F R.C P, F R S Materia Medica R. B Wild, M D Public Health and Bacteriology A. S Delépine, M B C M, M Sc. Pathology H R. Dean, M A D M, B Ch, F R C.P Systematic Medicine George R. Murray M A. M D Systematic Surgery J W Smith, M B, C M F R C S Clinical Surgery William Thorburn B Sc, M D, B S, F R.C S Obstetrics and Gynæcology Archibald Donald, M A., M D, F R.C P Forensic Medicine William Sellers M D, M R C S, D P H

Communications should be addressed to the Registrar The University, Manchester

Scholarships, Fellowships, and Prizes.—At this University there are 22 Foundation Scholarships 12 Exhibitions, five being for subjects connected with medical study, a Surgical Prize, a Fellowship Research Fellowships in Public Health, and Honorary Research Fellowships. 13 Scholarships are Entrance Scholarships one is Medical and there are one each for Surgery Biology Physiology and Diseases of Children and one General Medical and Surgical. Three of the Exhibitions are for Physiology one for Anatomy, and one for French and German The Surgical Prize named "The Dumville," is awarded on the results of the Final Examination in Surgery in the Summer Term, £15 The Leech Fellowship (£100) is for the encouragement of study and research and is open to persons who have graduated M B, Ch B. in the University not more than 18 months previously The Honorary Research Fellowships, tenable for two years, conferring the right of free use of the laboratories, are awarded generally in October on application with evidence of capacity for independent investigation

There are many entrance scholarships the examinations for which are held in the month of May Full particulars can be obtained from the Dean.

The Medical School—This medical school is located in a large building, which forms a part of the University It is provided with large dissecting rooms, physiological laboratories, private laboratories, and work rooms, besides lecture rooms, a museum, and a library In order to give the fullest possible opportunities for teaching and investigation in the departments of Anatomy Physiology, Pathology, and Materia Medica, a large extension of the school buildings was made in 1895 A special laboratory, under the charge of Dr T Graham Brown, is equipped for experimental work on the central nervous system. In the pathological laboratories ample provision is made for the teaching of pathology and bacteriology and for the prosecution of original research. The Helen Swindells Laboratory under the charge of Dr Powell White, is specially equipped for cancer research and investigation in general pathology In the public health department, which is lodged in a separate institute in York Place, near the Royal Infirmary, suitable laboratory accommodation is provided for the study of sanitary chemistry, physics and practical bacteriology in the departments of chemistry and physics and in that of pathology

Clinical Studies—The clinical and practical departments of medical study are taught partly in the Medical School and partly in the Royal Infirmary and St Mary's Hospitals for Women and Children, as well as in a fever hospital, a lunatic asylum and a convalescent home. Medical and Surgical Clinical Classes are conducted in the Infirmary, which together with the associated hospitals at Cheadle contains 1158 beds, and separate instruction is afforded in the elements of Medical and Surgical Physical Diagnosis in Obstetric Medicine, Ophthalmic Surgery, and Pathological Anatomy by the different members of the staff of the Medical School and Infirmary

Clinical Instruction—THE MANCHESTER ROYAL INFIRMARY—The new Royal Infirmary has been built on the pavilion system near the University, between the recently enlarged Eye Hospital and the new St Mary's Hospital for Women and Children, and has accommodation for 836 (including 422 temporary military beds) Excluding military beds 46 are allotted to the Special and Emergency Departments, the 360 remaining beds are allocated as follows 120 for medical practice and 240 for surgical practice (144 for men and 96 for women and children) The medical side consists of five units, each unit having a testing room for the scientific investigation of morbid products and a class-room. The surgical beds are also arranged in five units, each unit having its own operation theatre, with anæsthetising, recovery, sterilising testing and apparatus rooms and its own class-room attached. Of these units all are occupied The fine educational block provides very handsomely for the wants and comforts of the students there being separate suites of rooms for the men and the women and also a large common reading room, a lecture theatre, and a museum The present annual average number of in patients is 10 000 of out- and home patients 32 000, and the list of casualties in the accident room has averaged 22 000 per annum. About 8000 operations are performed annually in the operation theatres. Associated with the infirmary are (1) the Convalescent Hospital at Cheadle containing 136 beds, (2) the Royal Lunatic Hospital at Cheadle, accommodating with its branches 430 patients and (3) the Central Branch in the city for casualty and out-patient work, and 60 temporary military beds The Associated Hospitals thus contain 1402 beds and are under the same management Women students are admitted to the practice of the Infirmary on the same terms as men

Fees—Medical Practice Three months 5 guineas, six months 8 guineas, 12 months 12 guineas, full period required by the Examining Boards 42 guineas

Two Entrance Scholarships in Medicine of the value of £100 each are offered annually by the Council of the Manchester University and the Medical Board of the Manchester Royal Infirmary for proficiency in Arts and Science subjects respectively Other scholarships and prizes are in the College Syllabus. Numerous annual appointments and junior appointments may be held by those who have attended the practice of the Infirmary

Staff—Consulting Physicians Dr Graham Steell Dr Judson S Bury and Dr A. T Wilkinson Physicians Dr F S Reynolds Dr G R Murray Dr R. T Williamson, Dr E M Brockbank and Dr E N Cunliffe. Assistant Physicians Dr F Craven Moore, Dr A Ramsbottom, Dr E B Leech, Dr F E Tylecote, and Dr C E Melland Professor of Pathology Dr H R Dean Pathologist Dr W B Anderton Consulting Surgeons Mr F A Southam and Mr G A Wright. Surgeons Mr W Thorburn Mr J W Smith, Mr A. H. Burgess, Mr J H Ray, and Mr E D Telford Assistant Surgeons Mr C Roberts, Mr P R. Wrigley, Mr H H. Rayner, Mr W H Hey, and Mr J P Buckley Anæsthetist Mr Alexander Wilson Consulting Obstetric Physician Dr Lloyd Roberts Gynæcological Surgeon Dr A. Donald Assistant Gynæcological Surgeon Dr W E Fothergill Ophthalmic Surgeon Dr A Hill Griffith. Aural Surgeon Sir William Milligan Assistant Aural Surgeon Mr F H Westmacott Consulting Dental Surgeon Mr W A Hooton Dental Surgeon Mr E G Long Dean Dr E M Brockbank. Resident Medical Officer Dr W J Reid Resident Surgical Officer Mr G B Warburton Pathological Registrar Dr W B Anderton. Medical Registrar Dr D T Harris Surgical Registrar Mr Howard Buck Director of the Clinical Laboratory Dr G E Loveday Assistant Director of the Clinical Laboratory Miss Hilda K. Brade Anæsthetists Mr S R. Wilson, Mr Edward Moir Mr E Falkner Hill, Mr T Coogan Mr G Benton, and Miss Mabel E May Assistant Medical Officers Dr Core, Dr C E Lea, and Dr J F Ward Assistant Surgical Officers Mr W R. Douglas Mr E E Hughes and Mr Howard Buck. Surgical Tutor Mr W R Douglas Medical Officer for Home Patients Dr George Ashton Medical Officer for Radiography and Electricity Department Dr A E Barclay Resident Medical Officer of the Convalescent Hospital, Cheadle Dr T A Black Resident Superintendent of the Royal Lunatic Hospital at Cheadle Mr W Scowcroft Medical Officer, Central Branch Mr J S Chorlton General Superintendent and Secretary Mr F G Hazell

MANCHESTER CHILDREN'S HOSPITAL Pendlebury, Gartside-street Manchester and St Anne's-on the Sea.—The hospital contains 188 beds and 24 in the Convalescent Home, St Anne's-on-the-Sea The medical staff visit the hospital daily at 10 A M Clinical instruction is given by the medical staff at the Hospital and Dispensary Out-patients are seen daily at 9 A M at the new Out-patient Department, Gartside-street, Manchester Consulting Physician Dr Hutton Physicians Dr Heywood Dr Lapage, and Dr Ashby Surgeons Mr C Roberts, Mr H H. Rayner, and Mr John Morley Honorary Consulting Surgeons Mr G A Wright and Mr J Howson Ray Honorary Consulting Aural Surgeon Mr F H Westmacott Surgeon for Throat, Nose and Ear Diseases Mr Arnold Jones Honorary Ophthalmic Surgeon Mr J Gray Clegg Pathologist Mr A. H. Miller Anæsthetists Mr E Moir and Mr S R. Wilson Honorary Dental Surgeon Mr E A. T Green. Resident Medical Officers Miss Nesta Perry and Miss D Potts Medical Officers at the Dispensary Mr S N Mitra Mr K B Pinson and Mr A W Walsh Medical Officer X Ray Department Dr W J S Bythell During 1915 there were 2719 in patients, and 25 101 new out-patients were under treatment at the Dispensary, and there were 96 275 attendances made by out-patients Secretary Mr W M Humphry

THE MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN Park place, Cheetham Hill road, Manchester—The hospital contains 70 beds Out-patients are seen daily from 8 30 to 10 A M Honorary Consulting Physicians Dr W N Maccall Dr T C Railton, and Dr J J Cox. Honorary Consulting Surgeons Mr Frederick A. Southam and Dr A W W Lea Honorary Physician for Women Dr T Arthur Helme Honorary Surgeon for Women Dr G W Fitz Gerald Honorary Physicians for Children Dr A. A Mumford Dr A. C Sturrock and Dr C Chisholm Honorary Assistant Surgeon for Women Dr D Dougal. Honorary Surgeon for Children Mr R Ollerenshaw Honorary Ophthalmic Surgeon Dr H H McNabb Honorary Anæsthetists Mr G A. Barrow Dr C H. Lee, and Dr D H Paul. Honorary Clinical Pathologist Dr J Staveley-Dick Pathologist Dr A. H Miller Assistant Medical Officers Mr R. W Walsh and Dr R C Holt House Surgeon (Temporarily filled)

UNIVERSITY OF LEEDS

Four degrees in Medicine and Surgery are conferred—viz. Bachelor of Medicine and Bachelor of Surgery (M B and Ch B) Doctor of Medicine (M D), Master of Surgery (Ch M), also Degrees and Diplomas in Dental Surgery and Diploma in Public Health A Diploma in Psychological Medicine is also granted

Degrees of Bachelor of Medicine and Bachelor of Surgery —Candidates for the degrees of Bachelor of Medicine and of Surgery are required to present certificates showing that they will have attained the age of 21 years on the day of graduation, and have attended courses of instruction approved by the University extending over not less than five years, two of such years at least having been passed in the University subsequently to the date of passing the First Examination Candidates must also satisfy the examiners in the several subjects of the following examinations entitled respectively the Matriculation Examination or such other examination as may have been recognised by the Joint Matriculation Board in its stead, the First Examination, the Second Examination, and the Final Examination

The First Examination —The First Examination consists of Part I, Physics and Chemistry, Part II, Biology Candidates will be allowed to pass the two parts separately

The Second Examination —The Second Examination consists of Part I, Anatomy and Physiology, Part II, Materia Medica and Pharmacy Candidates will be allowed to pass the two parts separately

The Final Examination —The Final Examination consists of Part I, Pathology and Bacteriology Part II, Forensic Medicine and Public Health Part III, Medicine Systematic and Clinical, including Mental Diseases and Diseases of Children, Surgery Systematic, Clinical, and Practical, Obstetrics, and Gynæcology Systematic Clinical and Practical, Pharmacology and Therapeutics. Candidates will be allowed to pass Parts II and III separately or together, and they may present themselves for examination in Part I at the end of the tenth term

Degree of Doctor of Medicine —Candidates are not eligible for the degree of Doctor of Medicine or Master of Surgery unless they have previously received the degrees of Bachelor of Medicine and Bachelor of Surgery and at least one year has elapsed since they passed the examination for those degrees Candidates for the degree of Doctor of Medicine are required to present a dissertation and, if the dissertation be accepted, to pass an examination

Professors—Physics W Bragg, M A., F R S Chemistry A Smithells, B Sc, F R S Organic Chemistry J B Cohen B Sc Ph D F R S Zoology W Garstang, M A., D Sc Botany J H Priestley Anatomy J K Jamieson, M B, C M Physiology and Histology De Burgh Birch, M D, C M, F R S E Pathology A S Leyton, M A, M D, Sc D, F R C P, D P H Clinical Medicine A. G Barrs, M D, F R C P Medicine T W Griffith M D, F R C P Surgery R. L Knaggs, M A., M D, M C, F R C S Clinical Surgery Sir B G A Moynihan, M S F R C S Obstetrics J B Hellier, M D Public Health W Angus, M D, D P H (Acting Professor) Therapeutics H J Campbell M D, F R C P Forensic Medicine F W Eurich, M D, C M Mental Diseases J S Bolton M D D Sc, F R C P

Information concerning scholarships and prizes can be obtained from the Dean of the Medical School

Clinical Instruction —THE LEEDS GENERAL INFIRMARY, in connexion with this medical faculty, has accommodation for 520 in patients including 88 beds at branch hospitals in the country During the last year 9319 in patients and 41,183 out patients were treated Clinical teaching takes place daily in the wards and Clinical lectures are given in Medicine and Surgery by the Physicians and Surgeons There are Medical, Surgical, Ophthalmic, Aural, Electro therapeutic, and Radiographic Departments in each of which special instruction is imparted to students A Gynæcological and Extern Obstetric Department, in which there were 410 confinements, together with Laryngeal and Skin Clinics, are in operation Several valuable prizes are given at the end of each session Numerous appointments at the Infirmary are annually open to students after qualification

Staff of Leeds General Infirmary —Consulting Physicians Sir Thomas Clifford Allbutt K C B, Dr John E Eddison, Dr Charles M Chadwick, and Dr Alfred George Barrs Consulting Surgeons Mr Thomas Pridgin Teale, Mr A W Mayo Robson, Mr Edward Ward, and Mr Harry Littlewood Physicians Dr Thomas Churton, Dr T Wardrop Griffith, and Dr W H Maxwell Telling Surgeons Mr R Lawford Knaggs, Sir Berkeley Moynihan, Mr Walter Thompson, and Mr J Faulkner Dobson Ophthalmic Surgeons Mr H Secker Walker and Mr A. L Whitehead Ear, Nose, and Throat Surgeons Mr G Constable Hayes and Mr E W Bain Obstetric Physician Dr J B. Hellier Assistant Physicians Dr Geo W Watson, Dr R A. Veale, and Dr C W Vining Assistant Surgeons Mr H Collinson, Mr L R Braithwaite, Mr J A. Coupland and Mr S W Daw Pathologist Dr A S Leyton Dental Surgeon Mr J B Hordern Director of the Electro-Therapeutic Department Mr L A. Rowden Clinical Pathologist Mr M J Stewart Assistant Clinical Pathologist (Vacant) Medical Tutor Dr J Le F C Burrow Surgical Tutor Mr A. Richardson Anæsthetists Dr Douglas Seaton Dr S T Rowling, Dr F Whalley, Dr Macvean, Dr F Marshall Greaves, Dr A. E Hutton, Dr C T Matthews, Dr W Maxwell Munby Dr R H B Adamson and Dr C E Dawson General Manager Mr Fred J Bray

UNIVERSITY OF SHEFFIELD

The Degrees in the Faculty of Medicine are Bachelor of Medicine and Bachelor of Surgery (M B Ch B), Doctor of Medicine (M D), and Master of Surgery (Ch M). The courses and degrees in the Faculty of Medicine are open to men and women alike

Candidates for a medical degree shall have matriculated in the University or have passed such other examination as may be recognised for this purpose by the University and sanctioned by the Joint Matriculation Board

A candidate for the degrees of M B, Ch B, shall produce certificates that he will have attained the age of 21 years on the day of graduation, that he has pursued the courses of study required by the University regulations during a period of not less than five years subsequently to the date of his matriculation, three of such years at least having been passed in the University one at least being subsequent to the passing of the First Examination

Degrees of Bachelor of Medicine and Bachelor of Surgery

The First Examination —The subjects of the examination are Chemistry, Physics, and Biology The Intermediate B Sc Examination in these subjects will, on payment of the required additional fee, be accepted instead of this examination Candidates must, after matriculation and registration as medical students have attended courses of instruction (lectures and laboratory work) in chemistry, physics, and biology for one year each

The Second Examination —The subjects of the examination are Anatomy and Physiology

The Third Examination —The subjects of the examination are Pathology and Pharmacology A candidate entering for the first, second, or third examination who shall pass creditably in one subject of either examination and obtain a certain minimum of marks in the other, may enter for such other subject separately in a subsequent examination Candidates must have completed the fourth year of professional study

The Final Examination —The subjects of the examination are Medicine (including Forensic Medicine Public Health Mental Diseases and Diseases of Children), Surgery, and Obstetrics (including Gynæcology) Candidates must satisfy the examiners in all subjects at the same examination Candidates must have completed the fifth year of professional study

Degree of Doctor of Medicine —Candidates for the degree of Doctor of Medicine must have passed the examination for the degrees of M B, Ch B at least one year previously, must present a thesis embodying observations in some subject approved by the professor of medicine and must pass an examination in the Principles and Practice of Medicine

Degree of Master of Surgery —Candidates for the degree of Ch M must have passed the examination for the degrees of M B, Ch B at least one year previously, and must, since taking the degrees of M B, Ch B, have held for not less than six months a surgical appointment in a public hospital

or other public institution affording full opportunity for the study of Practical Surgery

The subjects of examination are Systematic, Clinical and Operative Surgery, Surgical Anatomy Surgical Pathology, and Bacteriology

Professors—Physics W M Hicks Sc.D, F R S Chemistry W Palmer Wynne D Sc. F R S Biology Alfred Denny M Sc F L S Anatomy C J Patten M A M D Sc.D Physiology J B Leathes M B, F R S Medicine A. J Hall, M A., M D F R C P Surgery Sinclair White, M D, M Ch. F R C S Pathology J Sholto C Douglas, M A. M D Midwifery P E Barber B A. M R C S L R C P Public Health H. Scurfield M D D P H Dean of the Medical Faculty J B Leathes M B F R S

Scholarships &c—At this University in addition to four Edgar Allen scholarships of £100 a year for three years holders of which can take the courses in the Faculty of Medicine, there are 8 scholarships and a Town Trust Fellowship Full particulars as to curriculum scholarships &c., may be had on application to the Registrar or to the Dean of the Medical Faculty

The Medical School—The new buildings of the University opened in 1905 are situated at the west end of the city, adjoining Weston Park and the Medical Department occupies the entire north wing of the University quadrangle The various athletic and other students societies are under the management of a Students Representative Council, elected annually There are large and comfortable common rooms both for men and women students A refectory is open daily at the University where students may obtain refreshments lunch dinner &c., at extremely moderate prices The University journal *Floreamus* edited by a committee of staff and students is published each term The University Hostel, Ashgate road is recognised by the Senate as a residence for women students, full particulars of which may be obtained of the tutor for women students

Clinical Instruction—The University is within easy reach of the various hospitals with which it is connected for clinical purposes These are as follows The Royal Infirmary containing 320 beds with an annual average number of over 3800 in patients over 11 500 out-patients and over 23 000 casualties the Royal Hospital with 191 beds and an annual number of 3000 in patients over 20 000 out-patients and nearly 20 000 casualties, and the *Jessop Hospital for* Diseases of Women with 60 beds about 750 in patients and over 3000 out patients also a Maternity department with about 450 in patients per annum and about 700 out patient cases attended Special courses on Fevers are held at the City Fever Hospitals (570 beds) and on Mental Diseases at the South Yorkshire Asylum (1610 beds) For purposes of clinical practice the practices of the Royal Infirmary and Royal Hospital are amalgamated giving a total of 511 beds for the treatment of medical, surgical and special cases. There are special departments for the treatment of Diseases of the Eye at each institution with wards assigned to them In addition to these the Royal Infirmary has special departments for the treatment of Diseases of the Skin and Ear with beds assigned to them whilst at the Royal Hospital there are special out patient departments for Diseases of the Throat Ear Skin Orthopædics, and Mental Diseases During the last year over 6000 patients passed through the wards of the two institutions while those attending as out-patients numbered over 45,000 The department of Pathology and Bacteriology in the University is fitted with every requirement for the most advanced work in these subjects

Fees—The Composition Fees are as follows A for University Lectures and Practical Classes £80, B for Clinical Hospital Practice £49 17*s* 6*d* These two composition fees entitle the student to attendance on *all* the Lectures Laboratory Classes and Hospital practice (except Pharmacy) required for a Medical and Surgical Degree in the University or for the ordinary qualifying examinations of the various Examining Boards The composition fees do not cover the cost of apparatus instruments parts for dissection in anatomy &c. all of which must be provided by the student when and as required The fees are payable in instalments extending over the five years of the curriculum

Staff of the Royal Infirmary Sheffield—Physicians Dr W S Porter Dr A E Barnes, and Dr A. G Yates. Surgeons Professor Sinclair White, Mr Arthur Connell, and Mr Archibald Cuff Assistant Surgeons Mr Ernest Finch and Mr T B Mouat. Dermatologist Dr Rupert Hallam Honorary Pathologist Professor J Sholto C Douglas Medical Officer to the Ear and Throat Department Mr W S Kerr Ophthalmic Surgeon Mr G H Pooley Medical Registrar Dr W W King Medical Officer in Charge of Electrical Department Dr Rupert Hallam. Anæsthetists Dr W D Martin Dr W Sneddon and Dr T Robertson Clinical Pathologist Dr W W King Honorary Secretary to the Medical and Surgical Staff Mr W S Kerr Secretary to the Infirmary Jno W Barnes

Staff of the Sheffield Royal Hospital—Physicians Professor Arthur Hall and Dr A. E Naish Surgeons Mr Graham Simpson and Mr Garrick Wilson Assistant Physician Dr Herbert Henry Assistant Surgeons Mr Ferguson Wilson and Mr Vincent Townrow Ophthalmic Surgeon Dr Percival J Hay Assistant Ophthalmic Surgeon Mr Herbert Emmerson Aural Surgeon Dr George Wilkinson Physician for Mental Diseases Mr Gilbert E Mould Medical Officer to the Electrical Department Dr W Harwood Nutt Physician for Skin Diseases Dr E F Skinner Anæsthetists Mr Herbert Hallam, Dr C Graham Murray, Dr R G Abercrombie Dr Vernon Favell and Mr J B H Holroyd Pathologist Professor J Sholto C Douglas Honorary Secretary to the Medical and Surgical Staff Mr Graham Simpson (*pro tem*) Dental Surgeons Mr F G Mordaunt, Mr H J Morris Mr P S Stokes and Mr H J Stoner Assistant Dental Surgeons Mr R Cecil Webster Mr F W Goodwin Mr J H Skerritt Mr W Skerritt and Mr Frank C Harrison Honorary Secretary to the Dental Staff (Vacant)

UNIVERSITY OF BRISTOL

In the Faculty of Medicine there are the following degrees —Bachelor of Medicine and Bachelor of Surgery (M B and Ch B), Doctor of Medicine (M D), Master of Surgery (Ch.M), Bachelor of Dental Surgery (B D S), and Master of Dental Surgery (M D S) There are also the following diplomas Diploma in Public Health (D P H) Diploma in Dental Surgery (L D S.) and Diploma in Veterinary State Medicine.

All candidates for degrees in Medicine Surgery and Dentistry are required to pass an examination called the Matriculation Examination, which must include Latin, or to pass such examination as may be regarded as equivalent by the Senate. All courses degrees and diplomas are open to men and women alike

Conjoined Degrees of Bachelor of Medicine and Bachelor of Surgery—Candidates shall be not less than 21 years of age and shall have pursued the courses prescribed by University Regulations during not less than five and a half years of which three shall have been passed in the University, and two of these three subsequent to pass in the second examination All candidates for the degrees of M B Ch.B, are required to satisfy the examiners in the several subjects of three examinations the First Examination, the Second Examination and the Final Examination.

The First Examination—The subjects of examination are Chemistry (Inorganic) Physics and Biology the courses pursued being those for the time being approved for the intermediate part of the B Sc. curriculum. This part of the curriculum shall extend over one year

The Second Examination—The subjects of examination are Organic Chemistry and Elementary Anatomy (Part I) and Advanced Anatomy and Physiology (Part II.) Parts I and II. may be passed separately or together

The Final Examination—The subjects of examination are Materia Medica and Pharmacy Pharmacology and Therapeutics General Pathology, Morbid Anatomy, and Bacteriology (Part I), Special Pathology Forensic Medicine Toxicology and Public Health, Obstetrics (including Diseases of Women), Surgery (Systematic Clinical, Practical and Operative) Medicine (Systematic Clinical and Practical including Mental Diseases) (Part II) Candidates may pass I and II. together or separately, and Forensic Medicine and Toxicology may at the option of the candidate, be taken either with Part I or Part II

Degree of Doctor of Medicine—Candidates shall be Bachelors of the University of not less than two years standing as such and may elect either (1) to pass an examination in General Medicine or (2) to pass an examination in

State Medicine, or (3) to present a Dissertation The candidate who elects to pass the examination in State Medicine must hold a diploma in Public Health of some University or College, and the candidate who elects to present a Dissertation may be examined in the subject thereof

Degree of Master of Surgery —Candidates shall be Bachelors of not less than two years as such during which period they shall have attended the Surgical Practice of an institution approved for the purpose They shall pass an examination in Surgical Anatomy, Pathology, and Bacteriology, and Operative, Clinical, and General Surgery, and present to the University a Dissertation on some subject of Surgery

Professors—Chemistry Francis Francis, D Sc, Ph D Anatomy Edward Fawcett, M D, C M (Dean of the Faculty of Medicine) Physiology A F Stanley Kent, M A., D Sc Pathology I Walker Hall, M D, C M Obstetrics W C Swayne, M D, B S Surgery C A. Morton, F R C S, and James Swain M D, F R C S Medicine F H Edgeworth, M D, B C, D Sc, and J Michell Clarke, M D, LL D, F R C P

Clinical Instruction —The allied hospitals (Bristol Royal Infirmary and Bristol General Hospital) have between them about 600 beds and extensive out patient departments, special clinics for Diseases of Women and Children and those of the Eye, Throat, and Ear, in addition to large and well equipped departments for Dental work and large outdoor Maternity Departments

At each of these institutions there are well arranged pathological museums, post-mortem rooms, and laboratories for Morbid Anatomy There are also laboratories for work in Clinical Pathology, Bacteriology, and Cytology, in which special instruction is given in these subjects Departments are provided and well equipped for X ray work, both for diagnosis and treatment, the various forms of Electrical treatment, including High Frequency Currents, Electric Baths, Finsen Light treatment, and Massage.

The students of the school also attend the practice of the Royal Hospital for Sick Children and Women, containing 140 beds, and that of the Bristol Eye Hospital, with 40 beds The total number of beds available for clinical instruction is therefore about 750

Staff of the Bristol Royal Infirmary —Honorary and Consulting Physicians Dr R Shingleton Smith, Dr H Waldo, and Dr J E Shaw Honorary and Consulting Surgeons Mr E C Board, Mr W H Harsant, Mr A. W Prichard, Mr G Munro Smith, and Mr J Paul Bush. Honorary and Consulting Ophthalmic Surgeon Mr F Richardson Cross Honorary Physicians Dr A. B Prowse, Dr F H Edgeworth, Dr J A. Nixon (Dean of the Faculty of the Royal Infirmary) and Dr J R Charles Honorary Surgeons Dr J Swain, Mr T Carwardine, Mr H F Mole and Mr C F Walters Honorary Ophthalmic Surgeon Mr E H E Stack. Honorary Obstetric Physician Dr Walter Swayne Honorary Dental Surgeon Mr W R Ackland Honorary Physician to the Nose and Throat Department Dr P Watson Williams Honorary Assistant Physicians Dr J M Fortescue Brickdale and Dr Richard Clarke Honorary Assistant Surgeons Mr A Rendle Short and Mr H Chitty Honorary Assistant Dental Surgeon Mr F C Nichols Pathologist Dr I Walker Hall Honorary Demonstrator of Morbid Anatomy Dr J J S Lucas Assistant Pathologist Dr J R. Kay Monatt. Honorary Anæsthetist Mr A. L Flemming Honorary Assistant Anæsthetists Mr S V Stock, Mr Leonard Moore and Mr B C Eskell Honorary Skiagraphist Mr James Taylor

Staff of the Bristol General Hospital —Honorary and Consulting Physicians Dr A J Harrison and Dr J Barclay Baron. Honorary and Consulting Surgeons Mr George F Atchley, Mr Nelson C Dobson Mr F Poole Lansdown, Mr Chas F Pickering, and Mr H Greville Kyle Physicians Dr J Michell Clarke (Dean of the Faculty of the Bristol General Hospital), Dr George Parker, and Dr J C Symes Surgeons Mr C A. Morton Mr R G Poole Lansdown, Mr J Lacy Firth, and Mr E W Hey Groves Physician Accoucheur Dr W H C Newnham Physician to Department for Diseases of the Skin Dr W Kenneth Wills Physician in Charge of Out-patients Dr N Neild Surgeon to the Throat and Nose Mr A J Wright Surgeon to the Ear Mr J Lacy Firth Ophthalmic Surgeon Mr Cyril H Walker Assistant Physicians Dr Newman Neild and Dr Carey F Coombs Assistant Surgeon Mr C A. Moore Assistant Physician Accoucheur, with charge of Out-patients Mr D C Rayner Anæsthetists Dr J Freeman and Dr Hedley Hill Dental Surgeon Mr E A. G Dowling Assistant Dental Surgeon Mr H J Wyatt. Pathologist Mr G Scott Williamson Assistant Anæsthetist Dr C Corfield Curator of Museum Mr G Scott Williamson. Electrical Department Dr George Parker, Dr J Ellington Jones Skiagraphist Dr F G Bergin

Further information as to scholarships curricula, and fees can be obtained from the Dean of the Faculty of Medicine or the Registrar of the University

UNIVERSITY OF WALES

This University has the privilege of granting degrees in Medicine and Diplomas in Public Health At the three constituent Colleges of Aberystwyth, Bangor, and Cardiff there are Professors of Chemistry, Botany, Zoology, and Physics, so that the students of the University can obtain proper instruction in the ancillary subjects The foundation of a Medical Faculty has been laid at University College, Cardiff, where there is a recognised school of medicine

University College, Cardiff School of Medicine —All classes are open to both men and women students who may spend three or four out of their five years of medical study at Cardiff The courses of instruction given at Cardiff are recognised as qualifying for the examinations of the Universities, Royal Colleges, and other licensing bodies of Great Britain and Ireland, and they are specially adapted to meet the needs of those University students studying for Cambridge and London degrees Students who are preparing for these examinations may compound for their courses by paying a fee of £63, while a composition fee of £41 10s includes all the necessary courses for the first and second examinations for the Diploma of the Conjoint Board In all cases the composition fees may be paid by instalments. Hospital instruction is given at the King Edward VII.'s Hospital Cardiff. The attention of students about to matriculate is drawn to the numerous entrance scholarships offered for competition at University College, Cardiff, in April next most of which may be held by medical students Full particulars of the examination for these may be obtained by application to the Registrar In the department of Public Health established in 1899 instruction is given qualifying for the D P H examinations Further information may be obtained from the Dean of the Faculty of Medicine

Lecturers —Physics Professor A L Selby Chemistry Professor C M Thompson Zoology Professor W N Parker Botany Professor A H Trow Anatomy Professor David Hepburn Physiology Professor J B Haycraft Materia Medica and Therapeutics Dr W Mitchell Stevens. Pathology and Bacteriology Professor Emrys-Roberts Hygienic Chemistry Mr J H Sugden Public Health and Hygiene Dr E Walford and Dr D J Morgan Midwifery (for Midwives) Dr E J Maclean. Vaccination Professor Emrys Roberts

Clinical Instruction.—KING EDWARD VII 'S HOSPITAL, CARDIFF —Students can attend the practice of this Hospital, which contains 311 beds, 104 beds for military patients Founded 1837 In patients, 2260, out-patients, 13 604

Staff —Consulting Physician Dr Herbert Vachell. Consulting Surgeon Dr T Wallace Consulting Dental Surgeon Mr John C Oliver Physicians Dr Mitchell Stevens and Dr Cyril Lewis Surgeons Mr P Rhys Griffiths, Mr William Sheen, and Mr J Lynn Thomas Assistant Physicians Dr Alfred Howell Dr Ivor Davies and Dr Herbert Evans Assistant Surgeons Dr H G Cook, Mr Cornelius A Griffiths, and Mr William Martin Ophthalmic Surgeons Mr F P S Cresswell and Mr R Russell Thomas Assistant Ophthalmic Surgeon Dr D Leighton Davies Gynæcologists Dr Ewen J Maclean and Mr E Tenison Collins Ear Throat, and Nose Surgeon Dr D R Paterson Pathologists Mr H A. Schölberg and Professor Emrys-Roberts Sanitary Adviser Dr E Walford Anæsthetists Mr Mr Frederick W S Davies Assistant Anæsthetists Mr A C Devereux, and Dr J Sydney Rowlands Dental Surgeons Mr W Kittow and Mr Thomas Quinlan. Electrical Department Dr Owen L Rhys Resident Medical Officer Dr I A Razzak

SWANSEA GENERAL AND EYE HOSPITAL AND SWANSEA HOSPITAL CONVALESCENT HOME.—Hospital, 72 beds, Convalescent Home, 20 beds Consulting Physicians Dr D A. Davies Dr John A. Rawlings and Dr J S H Roberts Consulting Surgeons Mr J Thomas, Mr H A. Latimer, and Mr W F Brook. Honorary Consulting Gynæcologist Dr R Nelson Jones Physicians Dr E Le C Lancaster and Dr D E Evans Surgeons Mr R C Elsworth, Mr C L Isaac, and Dr W L Griffiths Physician Accoucheur Dr F Knight Gynæcologist Dr Edgar Reid. Ophthalmic Surgeons Dr Frank G Thomas and Dr E Quick. Surgeon to the Throat Nose, and Ear Department Mr Alban Evans Assistant Physicians Dr A. Clarke Begg and Dr Urban Marks Assistant Surgeons Dr A. W Cameron and Dr Trevor Evans Vaccine Therapist Dr A. Clarke Begg Medical Officers for Out-door Patients Dr A. W Cameron Dr Trevor Evans and Dr Urban Marks Surgeon Dentist Mr H J Thomas Electro-Therapeutic Officer Dr D R. Edwards Anæsthetists Dr H. W Gabe Dr C Evans and Dr T L Jones Secretary-Superintendent W D Hughes In patients, 2130, out-patients 9839

ENGLISH MEDICAL CORPORATIONS GRANTING DIPLOMAS

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGE OF PHYSICIANS OF LONDON AND THE ROYAL COLLEGE OF SURGEONS OF ENGLAND

Under this heading we give the regulations for the examinations enjoined by the Conjoint Examining Board of the Royal Colleges of Physicians of London and Surgeons of England and of the Society of Apothecaries upon students desiring their respective diplomas of qualification We do not give any list of schools recognised by these bodies as eligible to prepare students for their examinations beyond mentioning that all the schools which we have already described (under the heading of the Universities to which they are attached) are recognised as suitable places of instruction by the corporations granting medical diplomas The courses of study at the principal colonial medical schools are also recognised as qualifying for the examinations of these corporations

Any candidate who desires to obtain both the Licence of the Royal College of Physicians of London and the diploma of Member of the Royal College of Surgeons of England is required to complete five years of professional study at recognised Medical Schools and Hospitals and to comply with the following regulations and to pass the examinations hereinafter set forth Six months of the curriculum may be spent in an Institution recognised by the Board for instruction in Chemistry Physics, Practical Chemistry and Biology

Professional Examinations—There are three Examinations called herein the First Examination the Second Examination and the Third or Final Examination, each being partly written, partly oral and partly practical These examinations will be held in the months of January, April July and September or October, unless otherwise appointed. Every candidate intending to present himself for examination is required to give notice in writing to Mr F G Hallett, secretary of the Examining Board Examination Hall, Queen square Bloomsbury, W C 14 clear days before the day on which the examination commences transmitting at the same time the required certificates

The subjects of the *First Examination* are—Chemistry Physics Elementary Biology and Practical Pharmacy A candidate may take this examination in three parts at different times (Chemistry and Physics must be taken together until the required standard is reached in both or in one of these subjects but a candidate will not be allowed to pass in one without obtaining at the same time at least half the number of marks required to pass in the other) A candidate will be admitted to examination in Chemistry and Physics in Practical Pharmacy and Elementary Biology on producing evidence of having passed the required Preliminary Examination and of having received instruction in these subjects at a recognised institution but he may take Pharmacy at any time during the curriculum A candidate rejected in one part or more of the First Examination will not be admitted to re examination until after the lapse of a period of not less than three months from the date of rejection, and he will be re-examined in the subject or subjects in which he has been rejected If referred in Chemistry, Physics or Biology he must produce evidence of further instruction at a recognised institution Any candidate who shall produce satisfactory evidence of having passed an examination for a degree in Medicine on any of the subjects of this examination conducted at a university in the United Kingdom in India, or in a British colony will be exempt from examination in those subjects in which he has passed

The fees for admission to the *First Examination* are as follows For the whole examination, £10 10*s*, for re-examination after rejection in Parts I and II £3 3*s*, and for re-examination in each of the other parts, £2 2*s*

The subjects of the *Second Examination* are Anatomy and Physiology Candidates will be required to pass in both subjects at one and the same time. Candidates will be admissible to the Second Examination on production of the required certificates of professional study The study of Anatomy and Physiology before passing in two of first three parts of the First Professional Examination is not recognised.

A candidate referred on the *Second Examination* will be required before being admitted to re-examination, to produce a certificate that he has pursued to the satisfaction of his teachers, in a recognised place of study his Anatomical and Physiological studies during a period of not less than three months subsequently to the date of his reference.

The fees for admission to the *Second Examination* are £10 10*s* for the whole examination and £6 6*s* for re examination after rejection

The subjects of the *Third* or *Final Examination* are Part I Medicine, including Medical Anatomy, Pathology, Practical Pharmacy, Therapeutics Forensic Medicine, and Public Health. Candidates who have passed in Practical Pharmacy at the First Examination will not be re-examined in that subject at the Third Examination. Part II. Surgery including Pathology, Surgical Anatomy and the use of Surgical Appliances Part III. Midwifery and Diseases Peculiar to Women. Candidates may present themselves for Parts I. II, and III. of the examination separately or together at the expiration of not less than two years (24 months) from the date of passing the Second Examination on production of the certificates of study required for the respective parts, provided that the examination is not completed before the expiration of five years from the date of passing the Preliminary Examination

The fees for admission to the *Third* or *Final Examination* are as follows For the whole examination £21 Part I. For re-examination in Medicine, including Medical Anatomy Pathology Therapeutics Forensic Medicine, and Public Health £5 5*s*, for re-examination in Practical Pharmacy (if taken at this examination) £2 2*s* Part II. For re-examination in Surgery, including Pathology Surgical Anatomy, and the use of Surgical Appliances £5 5*s* Part III For re-examination in Midwifery and Diseases Peculiar to Women, £3 3*s*

A candidate referred on the *Third* or *Final Examination* will not be admitted to re-examination until after the lapse of a period of not less than three months from the date of rejection and will be required before being admitted to re examination, to produce a certificate, in regard to Medicine and Surgery, of having attended the Medical and Surgical Practice or the Medical or Surgical Practice, as the case may be during the period of his reference, and in regard to Midwifery and Diseases Peculiar to Women a certificate of having received subsequently to the date of his reference, not less than three months instruction in that subject by a recognised teacher

Students of recognised universities in England Scotland, and Ireland, who have passed examinations for a degree in Medicine at their universities in the subjects of the First and Second Examinations of the Examining Board may enter for the Final Examination at the expiration of two years from the date of passing in Anatomy and Physiology on production of the required certificates

Members of certain recognised Indian Colonial and Foreign universities who have passed examinations for the

Degree of Doctor or Bachelor of Medicine or Surgery in the subjects of the First and Second Examinations of the Examining Board may present themselves for the Final Examination under special conditions which can be ascertained on application to the Secretary

ROYAL COLLEGE OF PHYSICIANS OF LONDON THE MEMBERSHIP AND FELLOWSHIP

In addition to the diplomas granted by the English Conjoint Board, the Royal College of Physicians of London and the Royal College of Surgeons of England grant honour diplomas, which no longer give the right to practise professionally if held separately The Royal College of Physicians of London has two such diplomas, the *Fellowship* which is a purely honorary distinction and the *Membership* which is obtained by examination

Membership —Every candidate for the Membership of the College must furnish proof of having attained the age of 25 years Candidates must not be engaged in trade, dispense medicine, make any arrangement with a chemist or any other person for the supply of medicine, or practise medicine or surgery in partnership, by deed or otherwise Any candidate being already registered or having passed a qualifying examination in accordance with the Medical Act of 1886 who has obtained the degree of Doctor or Bachelor of Medicine at a University in the United Kingdom, in India, or a British colony, or who has obtained a foreign qualification entitling him or her to practise medicine or surgery in the country where such qualification has been conferred, wherein the courses of study and the examinations to be undergone previously to graduation have been adjudged by the Censors' Board to be satisfactory will (if the Censors think fit) be admitted to the Pass Examination The nature and extent of this examination will, in the case of each candidate, be determined by the Censors' Board All other candidates must produce proof of having passed the examinations required for the Licence of the College The examination is directed partly to pathology and partly to the practice of medicine and may be modified in circumstances to be ascertained by application to the Registrar For example, candidates under 40 years of age are examined in an ancient and a modern language, a test from which their seniors are exempt The fee for admission as a Member of the College is 40 guineas, except when the candidate for Membership is a Licentiate of the College, in which case the fee already paid for the Licence shall be deducted from the 40 guineas The fee for the examination is £6 6s

Fellowship —The *Fellows* are selected annually from the ranks of the *Members* by the Comitia of the College

ROYAL COLLEGE OF SURGEONS OF ENGLAND THE FELLOWSHIP

The Royal College of Surgeons of England confers its diploma of Fellow upon a few distinguished persons in an honorary capacity Two Members of long standing may also be elected to the Fellowship annually But the bulk of the Fellows obtain the diploma as the result of examination

Fellowship —The examination for the Fellowship is divided into two parts—viz , the First Examination and the Second Examination The subjects of the First Examination are Anatomy and Physiology, and the questions on these subjects may require an elementary acquaintance with Comparative Anatomy and Physiology The examination is partly written and partly *viva voce* The subjects of the Second Examination are Surgery including Surgical Anatomy and Pathology The examination is partly written and partly *viva voce* and includes the examination of patients and the performance of operations on the dead body The examinations are held during the months of May and November of each year

The fees for examination are —First Examination, each admission, 5 guineas Second Examination, each admission, 12 guineas Of such examination fees 17 guineas will be reckoned as part of the fee payable upon admission to the Fellowship The fee to be paid upon admission to the Fellowship is 30 guineas, except when the candidate is a Member of the College, in which case the fee is 26 guineas

A Member of the College is admissible to the First Examination at any time after receiving his Diploma of Membership A candidate who is not a member of the College is admissible to the first Professional Examination for the Fellowship on the production of evidence of having passed the First and Second Examinations of the Examining Board in England by the Royal College of Physicians of London and the Royal College of Surgeons of England (or, if a member of a University recognised by the College for the purpose, of having passed the Examinations in his University equivalent to the First and Second Examinations of the Board) and on the production of certificates of attendance upon certain courses of study described in the Regulations

A Member of the College is admissible to the Second Examination at any time after having passed the First Examination, on producing satisfactory evidence of having been engaged not less than six years in the study (or study and practice) of the profession

A candidate who is not a Member of the College must possess the registrable surgical and medical degrees of universities recognised by the Council and must have been engaged in the study (or study and practice) of the profession for not less than four years subsequent to the date of obtaining the recognised qualification, one year of which shall have been spent in attendance on the Surgical Practice of a recognised hospital. The diploma of Fellow is not conferred upon successful candidates until they have attained the age of 25 years

The Regulations may be obtained on application to the Director of Examinations Examination Hall, Queen square, Bloomsbury, London, W C

SOCIETY OF APOTHECARIES OF LONDON

There are two examinations—Primary and Final. The Final examination is divided into Section I and Section II. The Primary examination is held quarterly Final examinations are held monthly No examinations are held in the month of September

The Primary examination consists of two parts Part I Elementary Biology , Chemistry, Chemical Physics, including the Elementary Mechanics of Solids and Fluids Heat, Light and Electricity , Practical Chemistry , and Materia Medica and Pharmacy Part II includes Anatomy, Physiology, and Histology This examination cannot be passed before the completion of twelve months' Practical Anatomy with Demonstrations, and these subjects cannot be taken separately except in the event of the candidate having previously passed in one A schedule for the Primary examination, to be obtained of the Secretary, must be signed by the Dean of the Medical School or other authority Section I of the Final examination consists of three parts Part I includes the Principles and Practice of Surgery, Surgical Pathology, and Surgical Anatomy, Operative Manipulation Instruments and Appliances Part II includes the Principles and Practice of Medicine Pharmacology, Pathology and Morbid Histology , Forensic Medicine, Hygiene, Theory and Practice of Vaccination , and Mental Diseases Part III includes Midwifery, Gynæcology, and Diseases of New born Children and the Use of Obstetric Instruments and Appliances Section I of the Final examination cannot be passed before the expiration of 45 months from the date of commencement of medical study, during which time not less than three winter sessions and two summer sessions must have been passed at one or more of the medical schools connected with a general hospital recognised by the Society Section II of the Final examination consists of two Parts Part I Clinical Surgery , Part II Clinical Medicine and Medical Anatomy Section II cannot be passed before the end of the fifth year

The course of study for the *Primary examination* is as follows —Elementary Biology not less than three months , Chemistry and Chemical Physics six months , Practical Chemistry, three months , Pharmacy and Dispensing, three months , Anatomy six months , Practical Anatomy with Demonstrations, 12 months , Physiology six months , Histology with Demonstrations, three months. The study of these subjects must be pursued at a Medical School recognised by the Society Instruction in Pharmacy and Dispensing must be given by a registered medical practitioner or by a member of the Pharmaceutical Society by examination, or in a public hospital, infirmary, or dispensary

The course of study for the *Final examination Section I*, includes attendance on the Surgical and Medical Practice (with Post-mortem Examinations) at a hospital connected with a medical school for a period of one winter and one summer session, lectures on the Principles and Practice of Surgery, six months, Practical Surgery, three months, Clinical Surgical Lectures nine months, Dressership six months, Performance of Surgical Operations on the Dead Body, lectures on Principles and Practice of Medicine, six months, Pathology, three months, Clinical Medical Lectures, nine months, Clinical Clerkship, six months, Forensic Medicine, Hygiene and Insanity, three months, Midwifery and Gynæcology three months, Clinical Instruction in the same three months, a course of Practical Midwifery, attendance on 20 Midwifery cases The course of medical study must extend over the above-mentioned period of 45 months and the offices of dresser or clinical clerk must be held at a hospital or other institution recognised by the Society

The course of study for the *Final examination, Section II*, includes either attendance on the Practice of Medicine and Surgery at a hospital or other institution recognised by the Society for a further period of 12 months, or six months as above and six months as a pupil of a registered practitioner holding a public medical or surgical appointment or attendance at two special hospitals for six months (three months at each hospital) and for six months at a general hospital, all such hospitals to be recognised by the Society Evidence shall also be given of practical instruction in Infectious Diseases and in Mental Diseases (at a lunatic asylum or in the wards of an institution containing a special ward set apart for the treatment of mental diseases) and in any two of the following subjects Ophthalmic Surgery, Laryngology with Rhinology and Otology, Dermatology, and Diseases of Children' No candidate is eligible for the Final examination who has not completed the curriculum prescribed by the Society in evidence of which a schedule to be obtained of the Secretary must be produced, signed by the Dean of the Medical School or other authority Prior to Section II of the Final examination the candidate must produce certificates (1) of being 21 years of age, (2) of moral character, (3) of the course of medical study, (4) of proficiency in vaccination signed by a teacher authorised by the Local Government Board, and (5) of instruction in the administration of anæsthetics Candidates intending to present themselves for examination are required to give 14 days notice A form for this purpose will be sent on application

Licentiates are eligible for the Membership of the Society of Apothecaries Particulars may be obtained on application to the clerk

The fee for the Licence is 20 guineas Female candidates are admitted to examinations The examination offices are open from 10 A M to 4 P M on Saturdays from 10 A M to 1 P M All letters should be addressed to the Secretary, Court of Examiners, Society of Apothecaries of London, Blackfriars E C

METROPOLITAN ANCILLARY SCHOOLS AND HOSPITALS AFFORDING FACILITIES FOR CLINICAL OBSERVATION

The institutions which follow provide to the medical student and medical graduate facilities for different forms of instruction and clinical observation In each case further information can be obtained from the secretary of the hospital

THE SEAMEN'S HOSPITAL SOCIETY possesses two hospitals—the *Dreadnought* Hospital at Greenwich, 250 beds, and the Branch Hospital in the Royal Victoria and Albert Docks, E, 50 beds It has also two Dispensaries—one in the East India Dock road and the other at Gravesend—from which the patients are transferred to the hospitals The London School of Clinical Medicine is attached to the *Dreadnought* Hospital and the medical staff is as follows —Physicians Sir Dyce Duckworth, Bart, Dr F Taylor Sir J Rose Bradford K C M G, Dr Guthrie Rankin and Dr S Russell Wells Surgeons Mr W Turner Mr L H McGavin, Mr F Rock Carling and Mr C C Choyce Ophthalmic Surgeon Mr L V Cargill Surgeon for Diseases of the Skin Sir Malcolm Morris K C V O Surgeon for Diseases of the Throat, Nose, and Ear Mr Richard Lake Neurologist Dr Gordon Holmes Physician in Charge of the Electrical Department Colonel Collis Barry Assistant Physicians Dr C E Sundell, Dr H B Carlill, and Dr H R Prentice Assistant Surgeons Mr P Cole, Mr C Rowntree, and Mr E G Stanley Assistant Physician for Diseases of the Skin Dr H MacCormac Assistant Ophthalmic Surgeon Mr R Bickerton Assistant Surgeon for Diseases of the Throat, Nose, and Ear Mr G N Biggs Director of Pathology Professor R Tanner Hewlett Anæsthetists Dr E W Gandy and Dr W E Robinson Dean Mr C C Choyce Medical Superintendent Dr R. S Lawson The London School of Tropical Medicine is attached to the Albert Dock Hospital of the Society and the medical staff is as follows Physicians Sir Patrick Manson G C M G, Professor F M Sandwith, Dr C W Daniels and Dr G C Low Surgeon Mr J Cantlie and Colonel J J Pratt Ophthalmic Surgeon Mr L V Cargill Dental Surgeon Mr T H Vaughan Director Mr H B Newham Medical Officer East India Dock road Dispensary Mr W H F Oxley Surgeon Gravesend Dispensary Mr C E Robbs Secretary Mr P J Michelli, C M G

WEST LONDON HOSPITAL Hammersmith, W — This hospital has 160 beds, all of which are constantly in use 2714 in patients and 34,754 out-patients whose attendances numbered 147,687, were treated last year Attached to the hospital is the West London Post-Graduate College The practice of the hospital is reserved exclusively for qualified men, no junior students being admitted Instruction is given in the medical and surgical out-patient rooms and demonstrations are given in the wards every morning and afternoon Lectures and demonstrations are in abeyance during the war Special Classes are held in Diseases of the Throat and Nose, Skin, and Eye and in Gynæcology, Medical Electricity Operative Surgery, Bacteriology Anæsthetics, Intestinal Surgery, Medical and Surgical Diseases of Children, Blood and Urine, Clinical Microscopy, Tropical Medicine, Cystoscopy Venereal Diseases, and Operative Ophthalmology The accommodation for post-graduates consists of a large lecture room, together with reading, writing, and class rooms, &c The hospital has a fully equipped pathological laboratory at which instruction is given in elementary bacteriology, a class being held every month The fees for hospital practice including lectures, are £6 6s for three months or £15 15s for one year The certificate of the hospital is accepted by the Admiralty War Office, Colonial Office, and India Office in cases of study leave Further information can be obtained on application to the Dean, Mr Donald Armour, or Vice Dean, Mr Bishop Harman, at the hospital Physicians Dr A P Beddard, Dr E A Saunders, and Dr H Pritchard Physician for Diseases of Women Dr Drummond Robinson Assistant Physician for Diseases of Women Dr H J F Simson Surgeons Mr A Baldwin Mr Donald Armour and Mr J Pardoe Surgeon for Diseases of the Eye Mr Bishop Harman Assistant Surgeon for Diseases of the Eye Mr H P Gibb Assistant Physicians Dr Grainger Stewart, Dr J M Burnford and Dr Sydney A Owen Assistant Surgeons Mr O L Addison, Mr H Tyrrell Gray, and Mr H S Souttar Surgeon Dentist Mr H Lloyd Williams Physician in charge of Throat and Nose and Aural Department Dr H J Banks Davis Physician in charge of Children's Department Dr E A Saunders Surgeon in charge of Orthopædic Department Mr A Baldwin Pathologist Dr R R Elworthy Dermatologist Dr G Pernet Administrators of Anæsthetics Dr G P Shuter Dr H M Page, and Dr W E Robinson Assistant Anæsthetists Mr G R Phillips Mr J H Newmarch, and Mr R W Ironside Electrical Department Mr E. D MacDougal X Ray Department Dr R Morton Medical Registrar Dr A J Scott Pinchin Surgical Registrar Mr S G MacDonald. Secretary of the Hospital Mr A. Betteridge

GREAT NORTHERN CENTRAL HOSPITAL, Holloway road, N —This hospital is recognised by the Examining Board in England of the Royal Colleges of Physicians and Surgeons as a place of study during the fifth year of the medical curriculum Besides the Honorary Staff there are six Anæsthetists Pathologist, Resident Medical Officer, two resident House Physicians, and three resident House Surgeons The hospital contains 325 beds (including emergency beds), which are fully occupied

There is also a ward for children under five years of age The large rectangular and circular wards, each of which contains 24 beds, the observation wards, the two operation theatres, general and special out-patient and pathological departments, are specially designed with a view of offering the greatest facilities for clinical work. There is also a well appointed electrical department The Pathological Department has been extended and is under the control of a Director of Clinical Pathology The Reckitt Convalescent Home at Clacton on Sea belongs to the hospital It contains 40 beds Medical practitioners are cordially invited to see the general and special practice of the hospital Demonstrations are given daily in the wards and out-patient departments Clinical assistants (qualified), clinical clerks, and pathological clerks are appointed in the general and special departments and may receive certificates at the end of their terms of office Further particulars from the Secretary of the Medical Committee at the Hospital Consulting Physicians Sir R W Burnet and Dr E C Beale Consulting Surgeon Mr Peyton T B Beale Consulting Ophthalmic Surgeon Mr A. Stanford Morton Consulting Radiologist Dr Robert Knox Physicians Dr A. Morrison, Dr Symes Thompson, Dr Hinds Howell, Dr F W Price, Dr H. L Tidy and Dr E Bellingham Smith Obstetric Physicians Dr G F Blacker and Dr Cuthbert Lockyer Physician for Skin Dr Henry C Semon Surgeons Mr G B M White, Mr Arthur Edmunds, Mr C O Choyce, Mr Gwynne Williams and Mr Barrington Ward Ophthalmic Surgeon Mr A H Payan Dawnay Throat and Ear Surgeons Mr J Gay French and Mr H T Mant Dental Surgeon Mr C F Peyton Baly Medical Officers in charge of Electrical Department Dr Robert Knox and Dr John Morison Director of Clinical Pathology Dr Ernest H Shaw

PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N — This general hospital is in the midst of a densely populated neighbourhood of more than half a million inhabitants It contains medical, surgical, gynæcological, and children's wards, having in all 125 beds There are special departments for gynæcological cases, diseases of the eye, ear, throat, and nose, skin diseases, medical electricity, radiography, and dentistry Operations are performed every afternoon of the week (except Saturday) at 2 30 P M Clinical instruction, laboratory classes, and lectures are given in the wards and out-patient departments, laboratories, and lecture hall in connexion with the North East London Post-Graduate College attached There are four Resident Medical Officers, and Clinical Assistants are appointed under certain conditions Further particulars in regard to the hospital may be obtained from Mr H. W Carson, Secretary to the Medical Committee, 111, Harley-street, W , or from Dr A J Whiting, Dean of the North-East London Post Graduate College 19A, Cavendish square, W Consulting Physicians Sir James Reid, Bart , and Dr Percy Kidd Consulting Surgeon Mr Walter Edmunds Physicians Dr R Murray Leslie, Dr G P Chappel, and Dr A. J Whiting Assistant Physicians Dr A. G Auld and Dr T R. Whipham Surgeons Mr H W Carson and Mr J Howell Evans. Assistant Surgeon Mr E Gillespie Gynæcologist Dr A E Giles Assistant Gynæcologist Dr J Bright Banister Surgeon to Ear, Nose, and Throat Department Mr H D Gillies Ophthalmic Surgeon Mr R P Brooks Assistant Ophthalmic Surgeon Mr E A. Dorrell Physician for Skin Diseases Dr H W Barber Physician to Electrical Department Dr Metcalfe Anæsthetists Dr C F Hadfield, Dr W E Hills, and Dr Shannon Bacteriologist Mr Benians Secretary Mr F W Drewett

LONDON TEMPERANCE HOSPITAL Hampstead road, N W (Established 1873) —Consulting Physician Dr Fenwick Physicians Dr Parkinson, Dr Addinsell and Dr Kevin Byrne Consulting Surgeon Sir William Collins Surgeons Mr Arthur Evans and Mr H J Paterson Assistant Surgeons Mr James McClure and Mr Chad Woodward. Ophthalmic Surgeon Mr J Stroud Hosford. Physician for Diseases of the Skin Dr Sommerville Ear, Nose, and Throat Surgeon Mr Harold L Whale Medical Officer in charge of Electrical Department Dr Herbert Rhodes. Dental Surgeon Mr A. Alexander The hospital contains 116 beds The in patients in 1915 were 1233, and the out-patients and casualties numbered 19 546 new cases The medical and surgical practice of the hospital is open to students and practitioners Operations Mondays at 2 P M., Tuesdays, Wednesdays, and Fridays at 9 A M

HAMPSTEAD GENERAL AND NORTH WEST LONDON HOSPITAL —The Hampstead General Hospital (Haverstock Hill) and the North West London Hospital (formerly at Kentish Town) have been amalgamated since 1907 The Hampstead General Hospital (137 beds—viz , 118 free, 6 isolation, &c., and 13 paying or contributory, out of these, 53 beds are reserved for soldiers) accommodates the in patients from the districts hitherto served by both hospitals The out-patients, with the exception of Hampstead casualty and emergency cases, attend exclusively at the Out patients Department Bayham street, Camden Town, where there are usually two Resident Medical Officers as well as resident nurses Physicians to In patients Dr G A. Sutherland and Dr C O Hawthorne. Surgeons to In patients Mr J Jackson Clarke and Mr J W Thomson Walker Physicians to Out-patients Dr A Manuel, Dr F G Crookshank, and Dr A J Scott Pinchin. Surgeons to Out-patients Mr G E Waugh, Mr Sidney A. Boyd, and Mr Chad Woodward. Physician for Diseases of the Skin Dr S E Dore Gynæcologist Mr Bryden Glendining Ophthalmic Surgeon to In patients Sir William J Collins Ophthalmic Surgeon to Out-patients Mr T W Letchworth Throat and Ear Mr H L Whale Dental Surgeon Mr C H J Acret Anæsthetists Dr G A H Barton, Mr Hedley O Visick, and Dr Fraser Pathologist Dr Herbert W Perkins Further particulars from the secretary at the hospital (Haverstock Hill, N W)

NEW HOSPITAL FOR WOMEN, 144 Euston road, N W — Physicians for In patients Miss Macdonald, M B , and Mrs. Flemming, M D Surgeons for In patients Miss Aldrich-Blake, M D , M S , and Miss Chadburn, M D , B S. Physicians and Surgeons for Out-patients Miss Anderson, M D B S Miss Woodcock, M D , B S Miss Bolton, M D B S , and Miss Hamilton, M D , B S Children's Department Miss Hamilton, M D , B S Ophthalmic Surgeon Miss Sheppard, M B Senior Assistants for Out-patients Miss Mildred Burgess, M D , Mrs Sinclair, M D , and Miss M Paine, M D Obstetricians Miss Chadburn, M D B S Miss Turnbull, M D , and Miss Davies Colley, M D , F R C S Anæsthetists Miss Browne, L S A., and Miss Payne, M D A considerable number of the students work in the New Hospital under the visiting staff, and in return for much valued clinical teaching they perform the duties assigned to students in the wards of a general hospital Secretary Miss Imogen H Murphy

THE SOUTH LONDON HOSPITAL FOR WOMEN 103 South Side, Clapham Common, S W , Out-patient Department 88–90 Newington Causeway, S E —This hospital, officered entirely by medical women, is a general hospital for women girls, and small children of both sexes, and provides accommodation for 80 patients All diseases are treated with the exception of acute infectious fevers and mental disease There are Ophthalmic, X Ray, and Pathological Departments The provision of additional facilities for post-graduate training for medical women is one of the special objects of the hospital At the Out-patient Department in Newington Causeway 5765 new cases were treated during the past year, the total number of out-patient attendances amounting to 21,371 Clinical assistants (qualified women only) are from time to time appointed in the Out-patient Department Consulting Surgeon Mrs Scharlieb Physicians Dr Fraser and Dr Pulteney Assistant Physicians Dr Thackrah and Dr Pickard Surgeons Miss Chadburn and Miss Turnbull. Assistant Surgeons Miss Davies-Colley Miss Huxley, and Miss MacKenzie Ophthalmic Surgeon Miss Roberts Radiographer Miss Bernard Secretary Miss M E Ridler

FRENCH HOSPITAL AND DISPENSARY Shaftesbury avenue W C —This hospital, which was founded in 1867 to afford medical treatment for poor foreigners who speak the French language, has 74 beds, of which 30 are now occupied by British wounded soldiers Physicians Dr G Ogilvie and Dr L Williams Physicians to the Out-patients Dr H. Dardenne Dr Alex Manuel, and Dr J Campbell McClure Surgeons Mr W H Clayton Greene and Mr H de Méric Obstetric Physician Dr S Sunderland

Ophthalmic Surgeons Mr C Higgens and Mr G W Thompson Dental Surgeon Mr Wesley Barritt Honorary Anæsthetist Mr Walter Tyrrell Anæsthetists Dr J M Barlet and Dr Harvey Hilhard

The French (Convalescent Home and Retreat for Aged French People at Brighton) contains 81 beds, of which 50 are now occupied by British wounded soldiers Secretary Mr G Pondepeyre

ITALIAN HOSPITAL —This institution was established in 1884 for the maintenance and medical treatment of Italian and Italian speaking people, irrespective of their religious and political opinions who may be suffering from sickness or bodily infirmity, but the sick poor of any nationality are also admitted for treatment The institution also provides surgical and medical relief to Italians and others not being inmates of the hospital It has 50 beds normally, now increased to 85, of which 60 are devoted to British wounded Honorary Consulting Physician Sir Dyce Duckworth, Bart Honorary Consulting Surgeons Sir Frederick Treves, Bart, and Mr George Lenthal Cheatle, C B Physicians Commre. Dr F Melandri and Cav Dr Vincent Dickinson Assistant Physicians Dr G Tallarico and Dr Andrew S Currie Surgeons Mr T P Legg and Mr Sydney G Macdonald Assistant Surgeon Mr D Giordani Throat Nose and Ear Department Cav J Donelan Ophthalmic Surgeon Mr Stanford Morton Consulting Dental Surgeon Cav J FitzGerald Assistant Dental Surgeon Mr E Whishaw Wallis Anæsthetists Dr Hugh Richard Phillips and Dr R H Lee X Ray Department Dr Stanley Melville

GERMAN HOSPITAL, Dalston N E —This hospital was founded in 1845 with the object of supplying medical aid to poor people speaking the German language and for cases of emergency and of accident It has 184 beds, including a sanatorium with nine beds and a convalescent home at Hitchin with 40 beds Consulting Physician Sir H Weber Consulting Surgeon (Vacant) Physicians Dr F P Weber, Dr K Rupp, and Dr G Leopold Surgeons Mr E Michels Mr G J Jenkins, and Mr A. Compton Ophthalmic Surgeons Mr R Gruber and Mr O Markus Resident Medical Officers Mr H Schmidt and Mr M Schroeter

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Albany Memorial) Queen square Bloomsbury, W C —The hospital, with the Finchley branch, contains 200 beds and cots The physicians attend every Monday, Tuesday, Thursday, and Friday at 2 P M In and out-patient practice at that hour Consulting Physicians Dr Buzzard Sir D Ferrier and Dr Ormerod Physicians Dr Tooth, Dr James Taylor, Dr J S Risien Russell and Dr Aldren Turner Physicians for Out-patients Dr F E Batten Dr J S Collier, Dr E F Buzzard, and Dr Grainger Stewart Assistant Physicians Dr Gordon Holmes, Dr Hinds Howell, Dr S A K Wilson and Dr P W Saunders Surgeons Mr Donald J Armour and Mr Percy W G Sargent Ophthalmic Surgeon Mr Leslie Paton Laryngologist and Otologist Mr Sydney Scott Gynæcologist (Vacant) Anæsthetists Dr Llewelyn Powell and Dr Z Mennell Clinical Clerks are appointed under the in patient and out-patient physicians Lectures are given on Tuesdays and Fridays at 3 30 The hospital has been recognised by the Conjoint Board for England as a place where part of the fifth year may be devoted to clinical work All communications concerning clinical appointments lectures hospital practice and fees should be addressed to the Secretary at the hospital

HOSPITAL FOR EPILEPSY Maida Vale W (85 beds) —Both in patient and out-patient departments of this hospital are open free to students and medical graduates

Staff —Consulting Surgeons Sir A Pearce Gould, K C V O and Mr G Lenthal Cheatle Consulting Ophthalmic Surgeon Mr W Laidlaw Purves Physicians Dr George Ogilvie Dr Leonard Guthrie Dr G F Johnston Dr H Campbell Thomson and Dr Wilfred Harris Assistant Physicians Dr F L Golla, Dr E G Fearnsides and Dr Anthony Feiling Surgeon Mr A S Blundell Bankhart Gynæcological Surgeon Dr Victor Bonney Ophthalmic Surgeon Mr George W Thompson Surgeon for Diseases of the Ear Nose and Throat Mr Francis F Muecke Dental Surgeon Mr Herbert Smale Pathologist Mr Herbert W Perkins Anæsthetist Mr A Beresford Kingsford

WEST END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, PARALYSIS, AND EPILEPSY, 73, Welbeck street W —Graduates in medicine and senior students may attend demonstrations in the Out-patient Department No fees are charged The physicians treating out-patients are Dr Harry Campbell, Dr Frederick S Palmer, Dr Eric D Macnamara Dr Purves Stewart, Dr Frederick Golla, Dr H Ridley Prentice, and Dr Hildred Carlill Dr Dundas Grant demonstrates on throat and ear cases

The Savill Prize and Medal is awarded to the student who makes the best *viva voce* examination and presents the best thesis after attending at least 25 demonstrations

Owing to the war, demonstrations by the staff have been discontinued for the present

BETHLEM ROYAL HOSPITAL —This hospital is open for the admission of two Resident House Physicians who have recently obtained their diplomas to practise Medicine and Surgery They are permitted to reside in the hospital for a term generally not exceeding six months commencing May 1st and Nov 1st, and are provided with apartments, complete board, attendance laundry, and a salary at the rate of £100 per annum They are under the direction of the Medical Superintendent and are elected by the Committee from candidates whose testimonials appear to be most satisfactory The students of certain specified London Medical Schools receive Clinical Instruction in the wards of the hospital and qualified practitioners and other students may attend for a period of three months on payment of a fee Medical Superintendent Dr Porter Phillips Senior Assistant Physician Dr Ralph Brown Junior Assistant Physician Dr H L McCarthy

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton (333 beds) —The hospital contains 333 beds The Sanatorium at Frimley contains 100 beds and 50 beds for paying patients Six House Physicians reside in the hospital for a term of six months, their duties include attendance in the out-patient department Pupils are admitted to the practice of the hospital terms, £1 1s for one month, three months, £2 2s, perpetual, £5 5s Clinical Demonstrations are given throughout the year by members of the medical staff Lectures have been suspended for the duration of the war Clinical Assistants are appointed to the Assistant Physicians in the out-patient department and Clinical Clerks to the Physicians in the wards The hospital has been recognised by the Conjoint Board for England as a place where six months of the fifth year may be spent in clinical work The medical practice of the hospital is also recognised by the University of London the Apothecaries Society and the Army and Navy and Indian Medical Boards Consulting Physicians Sir Richard Douglas Powell Dr F T Roberts Dr J M Bruce Dr T H Green Dr T D Acland Sir J K Fowler Dr P Kidd and Dr H W G Mackenzie Physicians Dr F J Wethered Dr P Horton Smith Hartley, Dr. J J Perkins, Dr H Batty Shaw Dr W O Bosanquet, and Dr R A Young Assistant Physicians Dr C Wall, Dr W J Fenton Dr A J Jex Blake, Dr Burrell and Dr Gosse Consulting Surgeon Sir R J Godlee Surgeon Vacancy Dental Surgeon Mr A E Ironside Surgeon to Throat and Ear Department Dr Dundas Grant Superintendent of Laboratories Dr A O Inman X Ray Department Dr S Melville Resident Medical Officer Dr Jones Dean of the Medical School Dr Cecil Wall

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST Victoria Park, E —During the past year 947 in patients have been treated in the wards and the large number of 47 389 cases since the opening of the wards in 1855 The number of out-patients treated during 1915 was 7928 and 820 009 since the commencement of the institution in 1848 Information as to medical instruction can be obtained on application to the Secretary of the Medical Committee at the hospital Consulting Physicians Dr Vincent D Harris Sir William S Church Bart Dr L Clifford Beale, Dr Harrington Sainsbury and Sir Hugh Beevor Bart. Physicians Dr W J Hadley Dr E H Colbeck Dr Arnold Chaplin Dr Hugh Walsham Dr O K Williamson and Dr Clive Riviere Surgeon Mr H Morriston Davies Physicians to Out-patients Dr Eric Pritchard Dr Sydney A Owen Dr Goodman Levy, Dr H B Carlill, and Dr A J Scott Pinchin Laryngologist Mr W G Howarth Radiographer Mr D M Stone

Surgeon Dentist Mr Evelyn C Sprawson. Secretary Mr George Watts Secretary of the Medical Committee Dr Sydney A. Owen

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City road (80 beds)—This hospital provides accommodation for 80 in-patients Expenditure for 1915 £8100, income £7000 The attendance of out-patients averages 19,000 annually Consulting Physicians Dr Horace Dobell, Dr P J Hensley Professor D W Finlay, Sir Wm Osler, Bart and Dr W H White Physicians Dr A Davies, Dr J Calvert, Dr M Leslie, Dr J H Drysdale, Dr A. G Phear, and Dr H E Symes Thompson Assistant Physicians Dr Barty King and Dr Stott Consulting Surgeons Sir A Pearce Gould and Mr W Turner Surgeon Mr Arthur Evans Anæsthetist Mr H Drinkwater Clinical Pathologist Dr Carnegie-Dickson Dental Surgeon Mr G Thomson Radiographers Dr A. C Jordan and Dr Mowat Cardiologist Dr A. W Stott. Laryngologist Dr Mant Medical Registrar Dr Comyn Resident Medical Superintendent Colonel Murray, I M S Secretary Mr A. T Mays

THE MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, NORTHWOOD, CENTRAL OUT PATIENT DEPARTMENT, Fitzroy square, W—The hospital contains 110 beds Number of in patients 498, out-patients, 2159 Resident Medical Staff Clinical Demonstrations are given by the Visiting Medical Staff at the hospital at Northwood Clinical assistants are appointed to physicians in the wards and in the out-patient department Physicians Dr George Johnston, Dr T N Kelynack, Dr T D Lister, Dr Alexander Morison, Dr Halls Dally, Dr Basil Price, and Dr Reeve Surgeon Mr D C L Fitzwilliams Surgeon Laryngologist Mr J C Porter Radiographer. Mr J S Part Secretary Mr W J Morton Offices 7 Fitzroy square, W

QUEEN CHARLOTTE'S LYING IN HOSPITAL AND MIDWIFERY TRAINING SCHOOL Marylebone road, N W—This hospital receives about 1800 patients annually, besides having a large out-patient department. Medical pupils are received at all times of the year Pupils have unusual opportunities of seeing obstetric complications and operative midwifery, on account of the very large number of primiparous cases—nearly one half of the total admissions Clinical instruction is given on the more important cases which present themselves Certificates of attendance at this hospital are recognised by all the Universities Colleges, and licensing bodies Pupil midwives and monthly nurses are received and specially trained A Residential College provides accommodation for five men at a time, students and qualified practitioners and is opposite the hospital, with which it is in telephonic communication Arrangements have been made for Medical Students to receive the preliminary instruction in Practical Midwifery recommended by the General Medical Council For further particulars application should be made to Mr Arthur Watts Secretary at the hospital Consulting Physicians Dr George B Brodie Dr W S A Griffith, Dr W J Gow, and Dr T W Eden Physicians to In patients Dr A. F Stabb Dr C Hubert-Roberts Dr Thomas G Stevens, and Dr C White. Physicians to Out-patients Dr J B Bannister and Dr Wm Gilliatt Women students are received, and the Resident Medical Officers are women at present

THE HOSPITAL FOR WOMEN Soho-square, W—In connexion with the out patient department there has been for some years a well organised Clinical Department Gentlemen are appointed to act as clinical assistants to the gynæcologists to out-patients The appointments are open to qualified medical men and women Every facility is afforded them by the gynæcologists in the out-patient department of obtaining experience in diagnosis and treatment and the practical use of instruments Fee for one month £2 2s, for each subsequent month the same The hospital contains 67 beds In the out-patient department there were over 4000 new cases during the past year the total number of out-patient attendances being 14 500 This large number affords exceptional opportunities for examining and studying most of the varieties of the diseases of women Applications should be made to the Secretary Gynæcologists Dr Bedford Fenwick, Dr James Oliver Dr T G Stevens Dr H. J F Simson and Dr Trevor B Davies Surgeons Mr D Drew and Mr L H McGavin Surgeon Dentist Mr W J May Anæthetists Mr Ogle, Dr M Horne, Dr Pinto-Leite, and Dr J Mackenzie Pathologist and Registrar Dr Trevor Davies Secretary Alfred Hayward

SAMARITAN FREE HOSPITAL FOR WOMEN Marylebone road, N W—Qualified practitioners are admitted as clinical assistants to both the in and out-patient departments Demonstrations are given daily in both departments fees, payable in advance, are £3 3s for three months particulars may be obtained on application to the Secretary at the hospital There are 67 beds Consulting Staff A Routh, Dr W A Meredith Dr A H G Doran, and A C Butler Smythe Physician Dr H W G Mackenzie Surgeons to In patients Mr J D Malcolm, Dr C Roberts, Mr F J McCann, Mr C Keep and Mr C Lockyer Surgeons to Out-patients Mr J A. Willett Mr G F Smith, Mr C White Mr D W Roy and Mr W Gillies Registrar Mr A W Bourne Anæsthetists Mr G Jones Mr H Robinson Mr R W Ironside Mr E Drinkwater, and Mrs M Brady Resident Medical Officer Miss A Doherty Secretary Mr G H Hawkins.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN Glamis road, Shadwell E—The hospital maintains 126 cots, and on an average 2 out-patients are seen daily Clinical instruction is given by the physicians and surgeons to the hospital, which is recognised by the Conjoint Board for England as a school of medical teaching for students in the fifth year of the curriculum All particulars may be obtained on application to the Secretary Two clinical clerkships for qualified or unqualified students are open every three months subject to reappointment if desired. Clinical assistants (qualified men only) are from time to time appointed in the out-patient department Any additional information may be obtained on applying to Mr W J Wilcox the Secretary, at the hospital Physicians I E Graham Little, Dr A. M Gossage Dr Clive Riviere and Dr T Fisher Surgeons Mr R Warren and Mr J E Adams Assistant Physicians Dr O K Williamson Dr R S Frew, and Dr G Graham Assistant Surgeons Mr J E H Roberts and Mr C M Kennedy Ophthalmic Surgeon Mr F Juler Pathologist Dr E A. Ross Dental Surgeon Mr E S Pierrepont Medical Officer for the Electrical Department Dr Collis Barry Medical Officer for the Casualty Department Dr T B Jones Resident Medical Officer Mr H L. Cronk House Physician Mr K. S Bhat. Secretary Mr W M Wilcox

THE HOSPITAL FOR SICK CHILDREN, Great Ormond street, W C, contains 240 beds besides 30 beds at the convalescent branch, Highgate The hospital having been recognised by the Conjoint Board for England as a place where, under the new curriculum six months of the fifth year may be spent in clinical work, the practice is arranged to meet this need and is open to students of both sexes who have completed four years of medical study and also to qualified medical men and women The medical staff are recognised by the University of London as teachers in Diseases of Children Appointments are made every three months to six medical clerkships which are open to students of the hospital Clinical instruction is given daily by members of the visiting staff Fees for hospital practice, one month £2 2s, three months 5 guineas, perpetual ticket, 10 guineas Clinical Clerks, 1 guinea for three months Ophthalmological Clerkships—Clinical Clerks are appointed once a month. Fees £1 1s for one month's attendance Pathological Clerkships—Facilities are afforded for obtaining theoretical and practical instruction in Clinical Pathology and Bacteriology in the Pathological Laboratories Clerks attend for about four hours daily Fees For one month £3 3s, for two months, £5 5s, for three months £6 6s A reduction is made in the case of those already holding tickets for general attendance at the hospital. Special Post-graduate Classes are held throughout the year particulars of which may be obtained from the Dean or Secretary Consulting Physicians Sir Thomas Barlow Bart Dr F G Penrose and Dr A. E Garrod Physicians Dr A F Voelcker Dr W S Colman, Dr F E. Batten and Dr G F Still Physicians to Out-patients Dr F J Poynton, Dr Robert Hutchison, Dr H. Thursfield Dr T Thompson and Dr F Langmead Consulting Surgeons Mr John H Morgan C V O Surgeons Emeritus Surgeon Sir

LEWIS'S PUBLICATIONS.

JUST PUBLISHED A NEW (SEVENTH) EDITION Revised and Enlarged. With 1597 Illustrations Royal 8vo 32s net.

MANUAL OF OPERATIVE SURGERY.

By J FAIRBAIRN BINNIE, A.M, C.M Aberd, F.A.C.S, Surgeon to the Christian Church, the German and the General Hospitals, Kansas City, Fellow of the American Surgical Association, &c

. This Edition contains an Appendix on War Surgery

JUST PUBLISHED Demy 8vo With 126 Illustrations (3 in Colours) from Original Drawings and Photographs 10s 6d net, post free 10s 11d abroad, 11s 2d

THE PATHOLOGY OF TUMOURS.

By E. H. KETTLE, M D, B S, Assistant Pathologist, St Mary's Hospital, and Assistant Lecturer on Pathology, St Mary's Hospital Medical School, London.

"Dr E H. Kettle is to be congratulated on having produced a very useful volume A very special word of praise must be given to the illustrations..... They are admirably chosen and beautifully reproduced."—BRITISH MEDICAL JOURNAL.

We have every confidence in recommending Dr Kettle's work as a convenient and useful handbook. —THE LANCET

JUST PUBLISHED THIRD Edition Revised and Enlarged Demy 8vo 7s 6d net, post free 7s 11d abroad, 8s 2d.

STUDIES IN BLOOD PRESSURE. Physiological and Clinical.

By the late GEORGE OLIVER, M D Lond., F R.C P Lond

Third Edition Edited by Professor W D HALLIBURTON, M.D

This third edition of the late Dr Oliver's work will be welcomed by all exact clinicians."—THE LANCET

JUST PUBLISHED FOURTH Edition Revised and Enlarged with Plates and Illustrations Crown 8vo 7s 6d net, post free 7s 11d, abroad, 8s 2d

MENTALLY DEFICIENT CHILDREN: their Treatment and Training.

By G E SHUTTLEWORTH, B A, M.D, Hon Consulting Physician (formerly Medical Superintendent) Royal Albert Institution Lancaster, Special Schools Medical Officer to the Willesden Education Committee, and formerly to the School Board for London &c, and W A. POTTS, M A M D, Medical Officer to the Birmingham Committee for the Care of the Mentally Defective, late Medical Investigator Royal Commission on Care and Control of Feeble-minded &c

"This is the most concise and up-to-date book on the subject which we have read and we would recommend everyone who is interested to procure it and read it."—BRITISH MEDICAL JOURNAL.

ELEVENTH Edition Thoroughly Revised With 9 Coloured Plates and 261 Illustrations Demy 8vo 12s 6d net, post free 13s abroad 13s 6d

SWANZY'S HANDBOOK OF DISEASES OF THE EYE

AND THEIR TREATMENT

Revised and Edited by LOUIS WERNER, M B, F R C S I. Sen Mod Univ Dub, Surgeon to the Royal Victoria Eye and Ear Hospital, Ophthalmic Surgeon to the Mater Hospital Dublin, Professor of Ophthalmology Univ College Dublin, and Examiner in Ophthalmology, Dublin University

It will doubtless retain its well-earned reputation as a reliable and convenient manual. —THE LANCET

JUST PUBLISHED With 35 Stereoscopic Illustrations on Special Plates and other Figures in the Text. Royal 8vo 7s 6d net, post free 7s 11d., abroad 8s 1d

LOCALIZATION BY X-RAYS AND STEREOSCOPY

By Sir JAMES MACKENZIE DAVIDSON, M.B C M Aberd, Consulting Medical Officer Roentgen Ray Department Royal London Ophthalmic Hospital, and X-Ray Department, Charing Cross Hospital, President Radiology Section, Seventeenth International Congress of Medicine

Whilst the expert in radiography can learn much that is of value from this publication, it is nevertheless of even more value to the surgeon."—BRITISH MEDICAL JOURNAL

Crown 8vo With Illustrations. 5s net post free 5s. 4d

WAR SURGERY

By EDMOND DELORME, Medecin Inspecteur General de l Armee Ancien President du Comite Consultative de Sante de l Armée Translated by H. DE MERIC Surgeon, In patients, French Hospital and Dispensary London &c.

Might well be added to the kit of every young surgeon attached to our forces."—BRITISH MEDICAL JOURNAL.

We cannot imagine a more serviceable guide to the military surgeon."—EDINBURGH MEDICAL JOURNAL.

SECOND Edition. With Coloured Frontispiece Crown 8vo 5s net post free 5s. 4d

IONIC MEDICATION

The Principles of the Method and an Account of the Clinical Results obtained.

By H. LEWIS JONES, M.A. M.D F.R.C P., late Consulting Medical Officer to the Electrical Department in St. Bartholomew's Hospital Honorary Fellow of the American Electrotherapeutic Association.

The book so distinctly fills a vacant place that we are not surprised to hear that it has already reached a second edition."—BRIT MED JOUR

. *Complete CATALOGUE post free on application.*

London: H K LEWIS & CO LTD, 136 Gower Street & 24 Gower Place, W.C

Telegrams PUBLICAVIT EUSROAD LONDON" Telephone MUSEUM 1072.

THE TREATMENT OF DIABETES

Diabetifuge treatment is constituted on sound, practical, scientific lines, and yields most satisfactory results in the gradual diminution of the sugar percentage, which is in most cases of a permanent character

It has been well proven that **PEROXIDE OF MANGANESE** is one of the best producers of glycolysis, being a true oxygen carrier that readily yields some of its oxygen after absorption into the organism, and has the power of replenishing itself immediately after

BICARBONATE OF SODA is also a good oxygen carrier which has a high reputation in the treatment of Diabetes **CHLOR-HYDRO-METHYL-ARSENATE OF LITHIA** in small doses favours glycolysis both as an oxygen carrier and as an aid to assimilation

ANTIPYRINE, URANIUM NITRATE, and **SANTONIN** also enter into the composition of **DIABETIFUGE** These three substances are the most powerful restrainers and regulators of the glycogenic function known, and each is looked upon as a well-tried drug for the special purpose of preventing the formation of sugar

By the combination of these substances in **DIABETIFUGE,** a preparation is placed at the disposal of the Medical Profession which invariably effects a marked improvement in the condition of the diabetic patient and frequently a permanent cure

Price per box of 30 Cachets (for one month's treatment), **7/6**

NOT ADVERTISED TO THE PUBLIC.

URASEPTINE

ROGIER

1907—1916.

The Most Powerful of Urinary Antiseptics.

Uraseptine is a granulated product entirely soluble in water, its bases being **Piperazine, Urotropine, Helmitol, Benzoates of sodium and lithium,** and containing 60 centigrams (10 grs) of active matter to each teaspoonful Dose 2 to 6 teaspoonfuls daily It purifies the urines, and this action is due to its three principal properties

1. IT IS A URINARY ANTISEPTIC.

2. A SOLVENT OF URIC ACID AND OF PHOSPHATES.

3. A MILD NON-TOXIC DIURETIC.

NOTE THE FOLLOWING POINTS —

1 The **Benzoic acid** and the **Benzoates** are transformed in the system into hippuric acid and consequently make the urine acid, which is necessary when the latter is alkaline and ammoniacal

2 Moreover, this acid medium is indispensable for the cleavage of the **Urotropine** (Hexamethylenetetramine), which thus furnishes a certain quantity of Formol, the bacteria destroying properties of which are well known

3 **Helmitol** (anhydro methylene, citrate of Hexamethylenetetramine) possesses not only the property of disinfecting urinary apparatus to a greater extent than Urotropine, but it also possesses sedative anæsthetic properties of utmost value in painful affections

4 Lastly, the **Piperazine** (diethylene diamine) will cause the rapid elimination of uric acid and urates in the form of soluble compounds

URASEPTINE is put up in bottles containing 3½ oz, **4/6**, 12 oz, **10/6**

NOT ADVERTISED TO THE PUBLIC.

Further Literature on application to—

THE ANGLO-FRENCH DRUG CO, Ltd (late M BRESILLON & CO),
GAMAGE BUILDING, HOLBORN, LONDON, E C

Phone: HOLBORN 1311.

Telegrams: AMPSALVAS LONDON

W A. Lane, Mr Thomas H Kellock, Mr Edred M. Corner Mr G E. Waugh and Mr H. A. T Fairbank. Surgeons to Out-patients Mr O L. Addison Mr H. T Gray and Mr L. E. Barrington-Ward. Ophthalmic Surgeon Mr W H. McMullen. Surgeon to Aural Department Mr G E Waugh. Dental Surgeon Mr A. T Pitts Radiographer Dr Ironside Bruce Local Medical Officer for Cromwell House Dr A M Henderson Medical Registrar Dr H Paterson. Clinical Pathologist and Bacteriologist Dr D Nabarro Anæsthetists Mr Graham Scott Dr H. S Sington, Mr C J Loosely, and Mr H B Wilson. Resident Medical Superintendents Mr T T Higgins and Dr G Pine. Secretary Mr Stewart Johnson.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark Bridge road, S E —This hospital contains 76 cots and a very extensive Out-patient Department About ten clinical assistants (either sex) to work with the Honorary Medical Staff for Out-patients are appointed quarterly for a period of three months, there is no salary attached to these posts, but on the other hand no fees are charged. Consulting Physicians Dr Frederick Taylor and Sir Nestor Tirard. Consulting Skin Physician Dr S Ernest Dore Physicians Dr J Charlton Briscoe, Dr T R Whipham and Dr D Forsyth. Physicians in charge of Out-patients Dr H. C Mann and Dr C E. Sundell Physician in charge of Skin Department Dr H. W Barber Consulting Surgeons Sir G H. Makins Sir F S Eve Mr F C Abbott Mr A. H Tubby and Mr C H Fagge. Consulting Aural Surgeon Mr G N Biggs Consulting Dental Surgeon Mr R D Pedley Surgeons Mr H S Clogg and Mr C A. R. Nitch Surgeons in charge of Out-patients Mr P Maynard Heath and Mr F D Saner Dental Surgeon (Vacant) Ophthalmic Surgeon Mr R E Bickerton Aural Surgeon Mr J F O Malley Anæsthetists Mr F D S Jackson and Mr H M Pinto-Leite Radiographer Mr W N Kingsbury Two House Physicians and one House Surgeon (Vacant) Secretary H C Staniland Smith

VICTORIA HOSPITAL FOR CHILDREN Chelsea S W —The hospital contains 104 beds and has a large out-patient department (over 1200 weekly), the home at Broadstairs has 50 beds and the home at Biggin Hill, Kent has 14 beds Consulting Physician Dr Ridge Jones. Consulting Surgeons Mr Cowell Mr Pickering Pick, and Mr D Arcy Power Physicians Dr Walter Carr Dr Humphry D Rolleston, Dr Charles Miller Dr Reginald Jewesbury Dr Douglas Firth and Dr E A. Cockayne. Physician to Skin Department Dr J M. H MacLeod Surgeons Mr H. F Waterhouse Mr Fedde Fedden, and Mr Ralph Thompson. Surgeons to the Out-patients Mr C M Page Mr H. Blakeway, and Mr Lancelot Bromley Ophthalmic Surgeon Mr C Devereux Marshall Dental Surgeon Mr Francis R Smyth Anæsthetist Dr W W Wells Electro-Therapeutic and Radiographic Department Dr Stanley Melville. Resident Medical Officer Mr L. Carnac Rivett House Surgeon (Vacant) House Physician Mr Desmond Quigley Secretary Mr H. G Evered Matron Miss J Watson Out-patients are seen as under —Diseases of the Eye Wednesday 2 P M. Diseases of the Skin Wednesday 1.30 P M Whooping-cough Cases Friday, 2.30 P M. Medical and Surgical Cases Mornings at 9 30 Dental Cases Thursday, 1.30 P M Accidents and urgent cases are admitted at any time.

THE QUEEN'S HOSPITAL FOR CHILDREN (*late North-Eastern Hospital for Children*) Hackney road, Bethnal Green N E (Telephone 305 Dalston.) For the sick children of the poor under 14 years of age. Established 1867 134 beds in London and 30 at the seaside branch. Little Folks Home Bexhill. —During the past year 2029 in patients and 42,225 out-patients (attendance 93 346) were relieved, 736 of the in patients being infants under two years of age Consulting Physicians Dr W Carter Dr W Pasteur Dr W A. Wills and Dr James Taylor Consulting Surgeons Mr Waren Tay Sir R. J Godlee, Bart Mr Bilton Pollard, Mr H Percy Dean and Mr Douglas Drew Physicians Dr J Porter Parkinson Dr Eric Pritchard and Dr Eric Bellingham Smith Assistant Physicians Dr Sidney Owen Dr Alexander Gow and Dr T H G Shore (Dr F H Dodd, Dr Alice King and Dr F G Chandler acting during the war). Surgeons Mr P Lockhart Mummery and Mr Stephen Fenwick. Assistant Surgeons Mr Blundell Bankart and Mr Norman Lake. Ophthalmic Surgeon Mr Sydney Stephenson (Thursday 2 30 P M.) Physician in charge of Skin Department Dr J L Bunch (Friday, 1 30 P M) Surgeon in charge of the Ear Nose and Throat Department Mr J H Connolly (Mr C H Hayton acting during the war) (Monday 10 A.M, and Thursday 9 A M) Dental Surgeons Mr S F Rose (Tuesday and Friday, 2 30 P M) and Mr Price Harris (every morning except Saturday for L C C school cases) (Mr F R Flintan acting during the war) Medical Radiographer Dr E. Ulysses Williams Pathologist and Registrar Dr Mildred Stogdon Resident Medical Officer Dr Hilda Bousfield Four other medical residents (men or women, appointed half-yearly)—viz, two House Physicians and two House Surgeons Matron Miss Bushby Secretary Mr T Glenton-Kerr The surgeons attend on Wednesdays at 1.45 P M and Fridays and Saturdays at 9 30 A M, the physicians daily at 1 45 P M, except Saturday, 9 30 A M., and Wednesday and Friday, 9 30 A.M. as well as 1.45 P M A course of clinical demonstrations and lectures open free to medical practitioners and students of medicine of both sexes is usually given during the winter session

THE BELGRAVE HOSPITAL FOR CHILDREN Clapham road, S W —Clinical Assistants (men or women) are from time to time appointed to the members of the Visiting Staff attending in the Out-patient Department at this hospital and facilities are given for attendance in the wards Physicians Dr Edmund Cautley, Dr Stanley Wyard, and Dr A. Ridley Prentice. Surgeons Mr Sidney A. Boyd Mr Lionel E C Norbury, Mr N Bishop Harman, Mr H Graeme Anderson, and Mr Chad Woodward.

ALEXANDRA HOSPITAL FOR CHILDREN WITH HIP DISEASE, Queen square, W C —At this hospital students who have obtained a recommendation from their teachers can attend to see the practice The out- and in-patients clinic is held on Mondays and Thursdays at 3 30 P M Surgeons Sir Anthony Bowlby and Mr W Girling Ball. Visiting Medical Officer Mr H. N Burroughes. Assistant Surgeon Mr K. J Acton Davis

ROYAL LONDON OPHTHALMIC HOSPITAL (Moorfields, 1804–1899) City-road E.C 138 beds.—This hospital, known as Moorfields Eye Hospital, was moved in 1899 to larger buildings in City road. In 1915 there were 2208 in patients the out-patients were 54,566 of whom 48,035 were new out-patients, and the attendances were 123 783 Operations are performed daily from 10 A.M to 1 P M, and four surgeons attend on each day Students are admitted to the practice of the hospital Fee for six months, £3 3s, perpetual, £5 5s. A special Clinical demonstration is given by a member of the staff in the out-patient department every morning Courses of instruction on the following subjects are given at the hospital periodically (1) examination of the eye, (2) the use of the ophthalmoscope, (3) errors of refraction, (4) external diseases of the eye, (5) surgical anatomy of the eye, (6) motor anomalies, (7) pathology of the eye, (8) practical pathology, (9) bacteriology, (10) operative surgery, and (11) X ray work A composition fee of £10 10s will entitle students of the hospital to a perpetual ticket and will admit them once to all the above lectures and demonstrations except the classes on practical pathology, bacteriology, operative surgery and X ray work. Students of the hospital are eligible for the offices of house surgeon or clinical and junior assistants Junior assistants are appointed every three months Any further information will be furnished by Mr Robert J Bland Secretary Consulting Surgeons Mr J Couper, Sir John Tweedy Mr W Tay Mr A. S Morton, and Mr W Lang Consulting Medical Officer to the X Ray Department Sir James M. Davidson. Physicians Dr J Taylor and Dr Gordon M Holmes Surgeons Mr J B Lawford, Mr E T Collins Mr W T H Spicer Mr P Flemming Mr J H. Fisher Mr C D Marshall Mr J H Parsons Mr C Worth, and Mr M L Hepburn. Assistant Surgeons Mr A. C Hudson Mr R Foster Moore and Mr R. Affleck Greeves Dental Surgeon Mr R M Fickling Medical Officer to the X Ray Department Mr R. Higham Cooper Curator and Librarian Mr F A. Juler Bacteriologist Mr S H. Browning Three Refraction Assistants 3 Resident House Surgeons, Chief Clinical Assistants, Clinical Assistants, and Junior Assistants

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, King William street, West Strand —The hospital contains 40 free beds The Out-patient Department has been reconstructed and enlarged, whereby the convenience for treatment and examination has been considerably improved. Patients, who number over 15,000 annually are seen at 1 P M., and operations are performed daily at about 2 P M The following are the days of attendance of the surgeons Mr Grimsdale and Mr Brewerton, Mondays and Thursdays, Mr Roll and Mr McMullen Tuesdays and Fridays, and Mr Cruise, Mr Viner, and Mr Hine, Wednesdays and Saturdays The practice of the hospital is open to practitioners and students Fees for six months, £3 3s , perpetual, £5 5s , shorter periods by arrangement Students of the hospital are eligible for the posts of house surgeon, assistant house surgeon, pathologist, and clinical assistants Clinical Assistants (who must be duly qualified) to the Surgical Staff are appointed twice a year for periods of six months Secretary Mr John Hy Johnson

ROYAL EYE HOSPITAL St. George s circus, Southwark, S E —There are 40 beds and 2 cots There were 64,446 attendances in the Out-patient Department last year, and the new patients numbered 21,949 Out-patients are seen daily 1 30 to 2 30 P M Surgeons Sir William J Collins, Mr L V Cargill, Mr J Stroud Hosford Mr E. Brooksbank James, Mr. E A. Dorrell, Dr H. Willoughby Lyle, and Mr. A D Griffith Physician Dr James Stansfield Collier Consulting Radiographer Dr. J H. Rhodes Pathologist Dr Effie Gordon Brander Dean Mr A D Griffith.

CENTRAL LONDON OPHTHALMIC HOSPITAL, Judd street, St. Pancras, W.C.—This hospital, which has lately been rebuilt, has 40 beds and possesses a well equipped laboratory and every facility for clinical teaching daily Last year there were 355 in- and 11,105 out-patients (entailing 29,206 attendances) The out-patient work begins at 1 o'clock, and operations are performed daily between 1 and 4 Consulting Physician - Sir Dyce Duckworth, Bart Consulting Surgeons Mr A. P L Wells and Mr Ernest Clarke Surgeons Mr Stephen Mayou, Mr J F Cunningham and Mr A Levy Assistant Surgeons Mr F A. Juler, Mr H P Gibb, and Mr M W B Oliver Physician Dr. Charles O Hawthorne Pathologist Mr F A. Juler. Bacteriologist Dr W Armstrong Radiographer Dr R Salmond Dentist Mr E P May Secretary Mr H R. S Druce

HOSPITAL FOR DISEASES OF THE THROAT, Golden-square, London, W , with which is amalgamated THE LONDON THROAT HOSPITAL, Portland road —The hospital contains 60 beds There is an out-patient attendance of over 50,000 yearly Clinical Instruction in the Diagnosis and Treatment of Disease is given in the out-patient department from 2 to 5 P M., on Tuesdays and Fridays from 6 30 to 9 P M , and Mondays at 9 A.M. Practitioners and Students are admitted to the Practice of the Hospital at a fee of 5 guineas for three months, 7 guineas for six months, or 10 guineas for a Perpetual Studentship Each course may commence at any date Special terms to men in actual practice who can only attend the hospital once or twice a week Gentlemen may enter to the practice of the hospital at any time From amongst the students Junior Clinical Assistants are selected whose duty it is to assist the member of the staff to whom they are appointed Two Systematic Courses of Lectures are given during the Winter Session, the one before and the other after Christmas, which are free to medical men and students on presentation of their cards A Course will also be given during May and June A syllabus of these lectures can be obtained on application to the honorary medical secretary Mr George W Badgerow Consulting Staff Mr T Mark Hovell, Dr. H. Lambert Lack, Dr Edward Law and Mr E B Waggett. Advisory Staff—Physicians Dr. A. O Latham and Dr C E Lakin Neurologist Dr E F Buzzard Ophthalmologist Mr W Lang Radiographer Dr W Ironside Bruce Surgeons Dr. J W Bond, Mr C A. Parker, Mr C Woakes Mr G C Cathcart, Dr W H. Kelson, Mr Jefferson Faulder, Mr George Badgerow Mr. Norman Patterson, and Mr Irwin Moore. Assistant Surgeons. Mr L Colledge, Mr F F. Muecke and Mr G W Dawson Dental Surgeon Mr A. T. Pitts Assistant Dental Surgeon Mr W G Oliver

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn road.—In addition to the new In patient Department and operation theatre the hospital has a very extensive out-patient department, which is open to all medical practitioners and students for the purpose of clinical demonstration and instruction during the hours of the surgeons visits During the past year 10 680 out-patients (involving close upon 50,000 attendances) and 686 in patients were treated The fee for three months' attendance is 5 guineas, for six months, 8 guineas The post-graduate teaching consists of successive series of practical demonstrations by the members of the staff delivered twice weekly during the winter and summer sessions They are so arranged that practitioners joining at any part of the course are enabled to complete the group of subjects A special Operative Surgery class is held at intervals The fee for each course is 2 guineas with daily attendance at the out-patient department during the period of the course. Details of subjects, &c., will be afforded by the Dean Considerable attention is given to scientific work, particularly with regard to Bacteriology of the ear and respiratory passages Operation days in patients, Monday, Tuesday, Wednesday Thursday, and Friday, at 2 P M , out-patients, daily at 9 A M. Consulting Physician Dr Purves Stewart Consulting Surgeons Sir Watson Cheyne, Bart , Dr Dundas Grant, and Dr Percy Jakins Consulting Ophthalmic Surgeon Mr Stanford Morton Surgeons Mr Chichele Nourse, Dr Abercrombie, Mr Stuart-Low, Dr. Andrew Wylie, Dr Atkinson, and Dr McKenzie Assistant Surgeon Mr H Kisch. Tuberculosis Department Mr John MacKeith Pathologist Dr Wyatt Wingrave Dental Surgeons Mr. Whishaw Wallis and Mr Henning James Anæsthetists Dr Beresford Kingsford, Dr Mortimer, and Dr Crampton. Assistant Anæsthetist Dr Leslie Rawes In addition the following appointments are open to qualified members of the profession —Six Registrars, tenable for twelve months, and sixteen Clinical Assistants tenable for three or six months Secretary Mr Richard Kershaw

THE METROPOLITAN EAR, NOSE, AND THROAT HOSPITAL (1838) (incorporated) —The hospital was founded in 1838, and is situated in Fitzroy square. The Out patient Department is opened daily at 2 30 P M. to all medical practitioners and senior students for acquiring clinical instruction and technical knowledge Operations upon in-patients are performed on Tuesdays, Wednesdays, Thursdays and Fridays at 10 A M Fee for one month's attendance at the hospital £1 1s , and for three months £2 2s During the forthcoming session practical demonstrations will be given by members of the staff on the diagnosis and treatment of diseases of the ear and respiratory passages Each course may commence at any time Clinical Assistants are appointed as vacancies occur, and have responsible duties Consulting Surgeon Mr J Pickett. Surgeons Mr. H Pegler Mr F Spicer Mr. W J Horne, Mr J C Potter, and Mr. H. Buckland Jones Anæsthetists Mr C Looseley Mrs. Brady and Mr C T. W Hirsch Pathologist Mr. A. E Leathem Dentist Mr J A Bowes

ROYAL EAR HOSPITAL, Dean street, Soho (Founded 1816)—Courses of instruction of a practical character in Diseases of the Ear and Nose are given by the members of the staff throughout the year. Clinical assistants are also appointed Students may join at any time. For information address the Honorary Secretary of the Medical Board Royal Ear Hospital, Dean street Soho Surgeons Mr M Yearsley, Mr Richard Lake Mr R S Cocke, Mr E A. Peters Mr H A Kisch and Mr J F O'Malley Physician and Pathologist Dr J Burnford Ophthalmic Surgeon Mr H W Lyle Dental Surgeon Mr F W Barrett Anæsthetists Dr Harold Sington Dr H B Wilson Mr W Howard Jones, Mr G W Gandy and Mr J C Clayton Radiographer Mr J Shepley Part.

ST MARK S HOSPITAL FOR CANCER, FISTULA AND OTHER DISEASES OF THE RECTUM, City road E.C (Founded 1835)—Honorary Surgeons Mr P Lockhart-Mummery Mr Aslett Baldwin and Mr. C Gordon Watson Assistant Surgeons Mr. H Graeme Anderson and Mr L Norbury The hospital contains 52 beds for men and women. Operations are performed on Mondays, Wednesdays, and Thursdays at 2.30 P M. Medical practitioners and students are invited to the operations and to the clinical instruction in the wards and in the out-patient department There is also

a course of lectures once a year generally during the summer session, free to all qualified medical men, particulars of which are announced beforehand. The number of out-patient attendances per year is 6900 and the average number of in patients 730

ST PETER'S HOSPITAL FOR STONE AND OTHER URINARY DISEASES. Henrietta street Covent Garden Established 1860 New Hospital opened 1882.—Honorary Surgeons Mr F Swinford Edwards and Mr P J Freyer Assistant Surgeons Mr John Pardoe Mr J W Thomson Walker and Mr J Swift Joly The hospital contains 30 beds for men and 2 beds for women and children Medical practitioners and students are invited to the clinical instructions which are given in the wards and out-patient department daily and to the operations in the theatre on Wednesdays and Fridays at 2 P M. Average beds occupied daily 30, average out-patients seen daily 125

ST JOHN'S HOSPITAL FOR DISEASES OF THE SKIN 49 Leicester square W C Rebuilt 1905 —The in patient department 40 beds, is at 252, Uxbridge-road, W The out-patient practice is open to the medical profession at the following times Every day from 2 to 3.30 P M. and every evening (except Saturday) 6 to 7 At the afternoon clinics demonstrations on the different diseases presenting themselves in the out-patient department are given. The X ray department is open on Tuesday and Thursday afternoons The Chesterfield Lectures are given by Dr Morgan Dockrell on Thursdays at 6 P M October to March commencing Oct. 4th. At the end of the course the Chesterfield medal may be competed for by those who have attended three-fourths of the lectures Physicians Dr Morgan Dockrell Dr W Griffith Dr J L Bunch and Dr Knowsley Sibley Surgeon Mr M. K. Hargreaves Electro-Therapeutist Dr C R Kempster There is a well equipped laboratory where special courses in Pathology and Bacteriology of the Skin may be arranged for

LONDON LOCK HOSPITAL AND RESCUE HOME.—In the Female Hospital at Harrow road W there are 153 beds and 623 patients were admitted in 1915 In the Male Hospital and Out-patient Department in Dean street Soho W, there are 43 beds which during 1915 accommodated 336 patients 32,645 out-patients were treated. Over 3000 injections of the substitutes for the "606" treatment were made in 1915 Patients are seen at Dean-street on Mondays from 1 to 2 P M and from 6 to 8 P M, on Tuesdays and Wednesdays from 6 to 8 P M on Thursdays at 5 30-6 30 P M (female patients) on Fridays from 2 to 3 P M (female patients) and on Saturdays from 2 to 4 P M (males) Consulting Surgeons Mr Burton Shillitoe and Mr J A. Bloxam Consulting Ophthalmic Surgeon Mr F E Juler Physician Dr Sidney Phillips Surgeons Mr J Ernest Lane Mr Arthur Shillitoe and Mr Charles Gibbs Surgeons to Out patients Mr J Ernest Lane Mr Charles Gibbs Mr Arthur Shillitoe Mr Charles Prall Mr Herbert J Paterson and Mr J E. R. McDonagh. Registrar (Female Hospital) Mr J Johnston Abraham Anæsthetist Mr J D Mortimer Physician Electro-Therapeutic Department Dr Charles Pugh Pathologist Mr A. Fleming Dental Surgeon Mr S Lafferty House Surgeon at the Female Hospital Dr N S Bonard. House Surgeon at Male Hospital and Out patients' Department Mr S Chuttopadhya. Secretary Henry J Eason. Head office 283 Harrow road W

ENGLISH PROVINCIAL ANCILLARY SCHOOLS AND HOSPITALS

Under this heading we include all the hospitals which are recognised by the English Royal Colleges for a part of the required attendance on medical and surgical practice for medical clerkships and surgical dresserships The list includes nearly every hospital of a general character in the country having more than 150 beds though occasionally a large hospital is admitted because equally good opportunities are afforded to students as in other institutions in its neighbourhood while a small hospital may be included because no such facilities for study are present elsewhere The list is arranged alphabetically as to the town where the hospital is located

BATH ROYAL UNITED HOSPITAL, Bath —This hospital contains 130 beds and possesses a fine library Consulting Physician Dr A. E. W Fox. Consulting Surgeon Mr R. J H Scott Physicians Dr G A. Bannatyne, Dr T W Smith and Dr E J Cave Assistant Physicians Dr G E. Bowker Dr L H. Walsh and Dr R Waterhouse. Surgeons Mr H G Terry Mr F Lace, and Mr F Fraser Assistant Surgeons Mr W S Melsome, Mr A. L Fuller, and Mr W G Mumford. Physician to Electrical Department Dr P King Assistant Physician to Electrical Department Dr G E Bowker Pathologist and Curator of Museum Dr R Waterhouse Anæsthetist Mr A. de V Blathwayt Assistant Anæsthetist Dr Ray Eldridge Dental Surgeons Mr W J Royal and Mr S Carter Secretary Mr J M. Sheppard.

BEDFORD COUNTY HOSPITAL Bedford —This hospital has 100 beds with X Ray and Pathological Departments Consulting Physician Dr G P Goldsmith. Consulting Surgeons Mr E C Sharpin and Mr R. H Kinsey Physicians Dr R. Coombs and Dr W Phillips. Surgeons Mr W Gifford Nash and Mr Henry Skelding Ophthalmic Surgeon Dr H Goldsmith Assistant Physicians Dr A. C Perrim and Dr G T Birks Assistant Surgeons Dr S J Ross and Mr Walter Sharpin. Dental Surgeon Mr F W Williams House Surgeon (Vacant) House Physician Mr S N Kaul. Secretary Mr Beauchamp Wadmore

BRADFORD ROYAL INFIRMARY Bradford.—This hospital contains 210 beds The material passing through the Surgical wards consists of major operations chiefly abdominal, and gynæcological work, and affords excellent facilities for either students or post-graduates Plans for a new hospital of 382 beds have been adopted, and the building operations will be commenced as soon as the funds in hand will allow Consulting Physicians Dr Herbert C Major Dr David Goyder Dr Richard Honeyburne, and Mr Thomas Wilmot Physicians Dr Henry J Campbell Dr F W Eurich, Dr J Beattie Dunlop Dr W Wrangham and Mr W Mitchell (in charge of Electrical Department) Consulting Surgeon Mr Harry Meade. Surgeons Mr Charles F M. Althorp Dr Thomas J Wood, Mr John B Hall and Mr James Phillips. Consulting Gynæcologist Dr A. C F Rabagliati Gynæcologist Mr Charles F M. Althorp. Consulting Laryngologist. Dr Adolph Bronner Laryngologist Dr Andrew Little Assistant Surgeons Mr Francis W Gover and Mr Peter McEwan Assistant Physicians Mr W Messer and Dr W N West-Watson. Anæsthetists Dr W E Hayburn Dr R. A. Lankester, Mr J B Lockerbie, and Dr J D McCulloch. Pathologist Mr B Hughes Consulting Dental Surgeon Mr Arthur A. Matthews Dental Surgeon Mr H Alvin Mahony

THE ROYAL SUSSEX COUNTY HOSPITAL. Brighton (264 beds).—This hospital affords ample facilities for students possessing a large out-patient department a library and a well appointed clinical research and bacteriological department The hospital does not take resident pupils but out-pupils may attend the practice of the hospital for any period not exceeding two years on payment in advance of such a fee not exceeding 20 guineas as the Board of Management shall direct Consulting Physicians Dr Hollis and Dr Branfoot. Physicians Dr J F G Dill Dr Hobhouse and Dr Maynard. Assistant Physicians Dr W Broadbent Dr D Hall and Dr Bailey Consulting Surgeons Mr N P Blaker Mr W Turner and Mr T J Verrall Surgeons Mr R F Jowers Mr F J Paley and Mr A. H Buck. Assistant Surgeons Mr T H. Ionides Mr W A. Bowring and Mr H. N Fletcher Honorary Medical Clinical Assistant Dr R. Clapham Honorary Surgical Clinical Assistant Mr A. G Bate. Ophthalmic Surgeon Mr W W Griffin Dermatologist Dr A. W Williams Dental Surgeon Mr W R Wood. Assistant Dental Surgeon Mr T S Worboys Pathologist Dr H. M Galt

KENT AND CANTERBURY GENERAL HOSPITAL, Canterbury —The hospital contains 103 beds Pupils of the staff are admitted to the practice of the hospital and have the use of the library of the East Kent and Canterbury Medical Society for £7 7s A Roentgen ray apparatus has recently been given to the hospital. Operation day Thursday 11 A.M Physicians Dr Harold Wacher and Dr M. T Williams Consulting Surgeons Mr Frank Wacher and Mr Z. Prentice Surgeons Mr Sidney Wacher Mr E D White head Pead, and Mr P J Ferguson. House Surgeon Mr P A. C Patten Dentist Mr R. S N Faro Secretary Mr Arthur J Lancaster

DERBYSHIRE ROYAL INFIRMARY, Derby —This hospital contains 260 beds It was founded in 1810, and was entirely rebuilt and enlarged 1892–1915 on the most modern lines at a cost of over £144,000 There is a separate ophthalmic block of 33 beds, a separate children's block of 34 beds, and a special department for gynæcological cases There are three resident house surgeons and a resident house physician There is also a well equipped Finsen light and X ray department Registered medical students are admitted to witness the medical and surgical practice on payment of 10 guineas annually Consulting Physicians Dr Charles A. Greaves and Dr G Rice Physicians Dr Edmund Vaudrey, Dr Maurice Parry-Jones, and Dr Hugh Barber Consulting Surgeons Mr John A Sharp, Mr Charles H Hough, and Mr John L Wright Surgeons Dr Richard H Luce, Mr John A. Southern, Mr Francis L A Greaves, and Mr John E Kilvert Ophthalmic Surgeon Mr Edwin Collier Green Gynæcologist Mr Henry T Hicks Anæsthetists Mr W St A. St John, Dr J D C Allen, and Dr A D Hunt Pathologist Dr Hugh Barber Dental Surgeons Mr Charles J Allin and Mr J Montague Murphy

ROYAL DEVON AND EXETER HOSPITAL, Exeter —Medical and Surgical Staff Consulting Surgeons Mr J D Harris and Mr E J Domville Physicians Dr H Davy and Dr William Gordon Surgeons Mr Charles E Bell and Mr A. C Roper Assistant Surgeons Mr Brennan Dyball and Mr A L Candler Assistant Physician and Pathologist Mr Reginald V Solly Surgical Registrar and Assistant Pathologist Mr A. L Candler Surgeon Dentist Mr J M Ackland. Anæsthetists Mr Henry Andrew and Mr J Shirley Steele-Perkins Medical Officer in Charge of the Electrical Treatment Department Mr J Delpratt Harris Assistant Medical Officer in charge of the Electrical Treatment Department Mr Frank A Roper Surgeon in charge of the Ear, Throat and Nose Department Mr Robert Worthington The hospital contains 200 beds (including special children's wards) and has a good library, museum, dissecting room, and post-mortem room Attendance on the practice of this hospital qualifies for all the examining boards There is also a Private Nursing Staff attached to the hospital. For particulars as to fees, &c, apply to the Matron A new wing was added in 1897 Arrangements may be made by which gentlemen in practice desiring to increase their qualifications may have the use of the museum and library and other facilities and by which students may attend midwifery A new Operating Theatre was opened in 1906 (the gift of Mrs Nosworthy of New lands, Dawlish, Devon). The Electrical Treatment Department (the gift of Mrs M A Sanders) was opened in 1907 by Lady Duckworth King

WEST OF ENGLAND EYE INFIRMARY, Exeter —Physician Dr William Gordon Surgical Staff Mr A. C Roper and Mr Ransom Pickard Assistant Surgeon Mr G P Hawker Secretary Mr W W Beer The infirmary contains 64 beds Students of the Exeter Hospital can attend the practice of the Eye Infirmary Patients for the year ending Michaelmas, 1915, 2617

THE GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION, Gloucester —This hospital, which was granted the title of "Royal" on the occasion of King Edward VII 's visit to Gloucester in the year 1909 has 140 beds Consulting Surgeons Mr T S Ellis, Mr R M Cole, Mr H E Waddy, and Mr E Dykes Bower Physicians Dr W W Grosvenor and Dr D E Finlay Assistant Physician Dr H Cairns Terry Surgeons Mr W. Washbourn, Mr G W Ancrum, and Mr C V Knight Ophthalmic Surgeon Mr E Dykes Bower Assistant Surgeon Mr A Alcock Secretary Mr H. P Pike In patients, 1652, out-patients, 7230

NORTH STAFFORDSHIRE INFIRMARY, Hartshill, Stoke-on-Trent —The New Infirmary, opened in 1869 is built on the pavilion plan, has accommodation for about 240 patients, including Children's wards, and a special department for the treatment of Diseases of the Eye a special X Ray and Electrical Department, and a special department for the treatment of Diseases of the Ear, Nose and Throat, so that there are excellent facilities for acquiring a practical knowledge of the profession During the last six years the sum of £35,000 has been spent on new buildings and alterations A new Out-patient Department, costing £12,000 a new Children's Ward of 30 beds, a new Pathological Department, and a second large Operation Theatre are amongst the structural improvements already completed. The whole institution is now equipped in a thoroughly up-to-date manner Honorary Consulting Physician Dr A. M McAldowie Honorary Consulting Surgeons Mr W D Spanton and Mr G Stokes Hatton Physicians Dr S King Alcock, Dr H. Nicholls, and Dr J Russell Surgeons Mr Wheelton Hind, Mr Reginald Alcock, and Mr W O Allardice Assistant Physicians Dr W E L Horner, Dr G H Sowry, and Dr E C Myott. Assistant Surgeons Mr Harold Hartley, Mr Eric E Young, and Mr W Webster Consulting Ophthalmic Surgeon Mr H H Folker Ophthalmic Surgeon Mr R H Dickson Assistant Ophthalmic Surgeon Mr S McMurray Medical Officers in charge of the Electrical Department Dr G H List and Dr A H. John Surgeon in charge of Ear, Nose, and Throat Department Mr G A. Carter Dental Surgeon Mr J D Skae. Honorary Anæsthetists Mr G Blair and Dr C H Mott. Secretary and House Governor Mr T Basil Rhodes

HULL ROYAL INFIRMARY, Hull —This hospital contains 244 beds Consulting Physician Dr Edward O Daly Consulting Surgeons Sir John Sherburn, Mr Thomas M Evans, Mr Robert H B Nicholson, and Mr Edmund H Howlett Consulting Dental Surgeon Mr J Charles Storey Consulting Ophthalmic Surgeon Dr W C Rockliffe. Physicians Dr Frank Nicholson, Dr Frank C Eve, and Dr Edward Turton Surgeons Mr Alfred G Francis Mr Henry W Pigeon, Mr Edward Harrison and Mr Edward M Hainworth Ophthalmic Surgeon Dr Duncan Mackay Assistant Ophthalmic Surgeon Mr William Bainbridge. Assistant Surgeons Mr Harold Upcott, Mr Robert Grieve. and Mr Guy B Nicholson Assistant Medical Officer Mr Stanley E Denyer Dental Surgeon Mr Arthur W Turton Assistant Dental Surgeon Mr Stanley R Storey Anæsthetists Mr Harry L Evans and Dr Arthur T Sissons

LEICESTER ROYAL INFIRMARY, Leicester —Instruction in the infirmary for first-year students is duly recognised by the various examining bodies At the General Infirmary there are 230 beds, and at the Children's Hospital in connexion 70, total 300 The number has been temporarily increased and 160 beds have been placed at the disposal of the War Office for wounded soldiers A new wing containing 100 beds was recently opened by H R H the Duchess of Argyll, and a new Nurses' Home containing separate accommodation for 100 nurses has also been opened A reconstruction scheme has been carried out, and £120,000 spent on bringing the accommodation of the institution to a modern standard of efficiency This scheme has included the provision of two modern operating theatres, as well as a self contained out-patients' department The Children's Hospital has been reconstructed and enlarged by the addition of a third ward at a cost of £14,500 Open air balconies on all three floors are a feature A central sterilising department has been provided. Plans have been passed for a new Pathological Laboratory and post mortem rooms at an estimated cost of £5000 There are eight resident medical officers—viz, two house surgeons, one house physician, two assistant house surgeons one assistant house physician, and two dressers All receive salaries The dressers are given an honorarium of £10 10s on completion of six months' satisfactory service Consulting Surgeons Mr George C Franklin Mr Claude Douglas and Mr C J Bond Physicians Dr Reginald Pratt Dr Astley V Clarke Dr Robert Sevestre Dr T Villiers Crosby and (temporary) Dr J D Slight Surgeons Mr Henry J Blakesley Mr Cecil E Marriott, Mr J S Sloane and Mr F Bolton Carter Ophthalmic Surgeon Mr Nicholas C Ridley Aural Surgeon Dr Frederick W Bennett Physician to Out-patients Dr T Arnold Johnston (Honorary Pathologist) Surgeons to Out-patients Mr W I Cumberlidge and Mr T C Clare House Governor and Secretary Mr Harry Johnson.

NORTHAMPTON GENERAL HOSPITAL Northampton —Two new wings were opened in 1904 and the old buildings entirely renovated and re arranged The number of beds is 298 Non resident pupils are received and have every opportunity of acquiring a practical knowledge of their profession. The fee is £10 10s Pupils can be received at any time

Physicians Dr Peverel S Hichens and Dr W M Robson. Surgeons Mr George H Percival and Dr R A. Milligan Ophthalmic Surgeon Mr E Harries Jones Assistant Surgeon Mr N Blake Odgers Dental Surgeon Mr E Rogers Bull

NORFOLK AND NORWICH HOSPITAL, Norwich —This hospital has at present 400 beds (150 civilian, 250 military), Non resident pupils admitted Fees For three months £3 3s , for six months, £5 5s , as permanent pupil, £8 8s Consulting Surgeons Dr Beverley and Mr H S Robinson Physicians Dr Barton, Dr Burton Fanning, and Dr Long Surgeons Mr S H Burton, Mr D D Day, and Mr H. A. Ballance Assistant Physician and Electro-Therapeutist Dr A. J Cleveland Assistant Surgeons Mr E W Everett, Mr A. J Blaxland, and Mr J Burfield Dental Surgeon Mr H F White Secretary Mr F Inch

NOTTINGHAM GENERAL HOSPITAL —At the present time there are 233 beds available for civilian patients, and 250 for the accommodation of sick and wounded soldiers from overseas, including 150 in temporary buildings which have been erected within the hospital grounds for this purpose Consulting Physician Dr Henry Handford Physicians Dr Charles H Cattle, Dr Frank H Jacob, and Dr William T Rowe Assistant Physicians Dr James C Buckley and Dr H Smith Wallace Consulting Surgeons Mr Rupert C Chicken, Mr Joseph Thompson, and Mr H Owen Taylor Surgeons Mr Alexander R. Anderson, Mr Robert G Hogarth, Mr W Morley Willis and Mr Charles H Allen Assistant Surgeons Mr Alexander Robert Tweedie and Mr H Bell Tawse Dental Surgeon Mr John Battersby

SOUTH DEVON AND EAST CORNWALL HOSPITAL, Plymouth —This hospital contains 189 beds (25 to 50 of which are allocated for wounded soldiers) A new mortuary chapel has been recently erected Consulting Physician Dr R H Clay Physicians Dr E L Fox and Dr A. B Soltau Consulting Surgeons Mr P Swain and Mr R. H Lucy Surgeons Mr W L Woollcombe and Mr G F Aldous Assistant Physician Dr Colin D Lindsey Assistant Surgeons Mr W Crosbie Hamilton, Mr G C F Robinson and Mr H G Pinker Physician in charge of X Ray and Finsen Light Department Dr W Cheyne Wilson Anæsthetist Mr E G Smith. Registrar and Out-patient Anæsthetist Mr G S Earl Registrar and Emergency Anæsthetist Mr W L Hodge Dental Surgeon Mr A N Balkwill Pathologist Dr W L Pethybridge

THE ROYAL HOSPITAL Portsmouth (founded 1847) — The number of beds is 160 The hospital has X Ray and Massage Departments Honorary Physicians Dr John Phillips and Dr W P McEldowney Surgeons Mr C P Childe, Mr T A M Forde and Mr A B Wright Honorary Anæsthetist Dr W J Essery Honorary Assistant Physicians Dr E J Davis Taylor and Dr H Farncombe Honorary Assistant Surgeons Mr L Cole Baker, Mr C A. Scott Ridout and Mr H Burrows The hospital is a preparatory School of Medicine and Surgery, the attendance of pupils at this hospital is recognised by the Examining Boards Particulars of the Secretary at the hospital

ROYAL BERKSHIRE HOSPITAL Reading —This hospital which contains 230 beds, with military wards, has been recently enlarged the additions including a new Out-patient Department a Casualty Department an X Ray Department a Laboratory an Eye Theatre and Eye Wards Consulting Surgeons Mr J H Walters and Mr J A. P Price Physicians Dr W T Freeman and Dr G S Abram Assistant Physicians Dr G F Murrell and Dr G O Lambert Surgeons Mr W J Maurice, Mr L M Guilding, and Mr W J Foster Assistant Surgeon Mr W B Secretan Aural Surgeon Mr A. Roberts Ophthalmic Surgeon Mr R P Brooks Anæsthetist Mr R Ritson Consulting Dental Surgeon Mr A L Goadby Pathologist Dr R Donaldson Medical Registrar Dr H M Clarke Surgical Registrar Mr J L Joyce Clinical Assistants in the Ophthalmic Department Mr C B Baxter Mr R H Cotton, and Mr F H P Wills Clinical Assistant in the Aural Department Mr L. Powell

SALISBURY GENERAL INFIRMARY, Salisbury —This hospital contains 200 beds Consulting Physician Dr G G Morrice Consulting Surgeon Mr L S Luckham Physicians Dr W W Ord and Mr J E Gordon Surgeons Dr C G B Kempe and Dr E T Fison Assistant Surgeons Mr J Armitage and Mr T B Henderson Physician in charge of the X Ray Department Dr G E Thornton Ophthalmic Surgeon Mr P C Bardsley Surgeon Dentist Mr F Gordon Honorary Anæsthetists Dr G E Thornton and Dr L D Saunders Secretary Mr S B Smith In patients, 135 weekly average, out-patients, 1013, including dental cases 347, ophthalmic cases 72, and X ray cases 416, attendances on 2842 casuals

ROYAL SALOP INFIRMARY, Shrewsbury —This hospital has 150 beds Consulting Physicians Dr E Burd, Mr R. W O Withers Dr E Lycett Burd, and Colonel E Cureton, M D V D Physicians Dr H. W Gardner, Dr R. H Urwick, and Dr F Whincup Consulting Surgeon Mr W Eddowes Surgeons Mr A Jackson, Mr H H. B MacLeod and Mr L J Godson Ophthalmic Surgeon Mr C G Russ Wood Pathologist Dr F A. Anderson Assistant Pathologist Dr R. Osborn Smyth Radiographer Mr W S Edmond Dental Surgeon Mr W E Harding Honorary Health Officer Mr James Wheatley Secretary Mr Alfred Sugden. In patients, 1468, out-patients 904, out-patients' attendances for the year, 15,846

ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL, Southampton —This hospital contains 130 beds Physicians Dr N E Aldridge and Dr H P Ward Assistant Physicians Dr J H P Fraser, Dr B N Tebbs, and Dr H J Nightingale Surgeons Extraordinary Mr W Sims and Mr A B Wade. Surgeons Mr H W Shettle, Mr J R Keele and Mr W P Purvis Assistant Surgeon Mr G H Cowen Throat and Ear Surgeon Mr W P Purvis Dental Surgeon Mr E G Robertson Electro-Therapeutic Department Dr N E Aldridge Secretary Mr T A. Fisher Hall In patients 2107, out-patients, 10,024

STAFFORDSHIRE GENERAL INFIRMARY, Stafford.—This hospital has 77 beds Honorary Consulting Physician Dr G Reid Physicians Dr C Reid and Dr L Gray Surgeons Mr F M Blumer and Mr F H Marson Assistant Honorary Surgeon Mr F N Cookson Ophthalmic Surgeon Mr A B Cridland. Surgeon Dentist Mr W H Ridge Secretary Mr R Battle In patients, 839, out-patients, 2399

ROYAL HANTS COUNTY HOSPITAL, Winchester —This hospital has 108 beds Honorary Consulting Physicians Dr W M Harman and Dr H E Wingfield Physicians Dr G F A. England, Dr A. E Bodington, and Dr G A. Tullis Surgeons Mr H J Godwin, Mr F J Child, and Mr G A Roberts Honorary Ophthalmic Surgeon Mr A. Zorab Honorary Dental Surgeon Mr L M Balding Honorary Medical Officer in charge of the X Ray Department Dr Norman Aldridge Secretary Mr Edwin J Pearce

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL Wolverhampton —There are 209 beds Special departments for Children, Gynæcology, Ear Throat, and Nose Diseases Electro-therapeutic and X ray and Pathological departments There is an excellent library The resident officers are a resident medical officer and three house surgeons Consulting Surgeon Mr W H T Winter Physicians Dr H Malet Dr J A Codd and Dr A. H Carter Surgeons Mr E Deanesly, Mr A. H Hunt, Mr W F Cholmeley, and Mr Howard Dent Assistant Physicians Dr E H Coleman and Dr T H Galbraith Assistant Surgeon Mr C A. Stidston Anæsthetists Dr E W Strange, Mr David Mann, Dr F R Armitage, and Dr J N McTurk. Pupils are allowed to witness the whole of the practice of the hospital and to be present at operations and have every opportunity of acquiring a practical knowledge of their profession Fees £3 3s a quarter, £10 10s the first year and £5 5s subsequent years A course of Practical Pharmacy is given by the dispenser Fee £3 3s for three months Applications should be made to the Secretary of the Medical Committee.

WORCESTER GENERAL INFIRMARY, Worcester —This hospital has 132 beds (temporarily reduced to 70) Pupils are taken by members of the Honorary Medical and Surgical Staff Number of operations last year 899 New X Ray and Electrical Departments have been recently erected and are now in use Additional accommodation for the Honorary Staff and Out patients and also an Outdoor Shelter in connexion with the Children's Ward have been built as a memorial to King Edward VII Consulting Physician Dr M Read Physicians Dr G W Crowe Dr H A Watson and Dr Neville Crowe Surgeons Mr T P Gostling, Mr C Pollard, and Mr T Bates, jun. Secretary Mr E. J Holland In patients, 1250, out-patients, 3758

YORK COUNTY HOSPITAL, York.—This hospital contains 170 beds, 120 beds are in use by military patients, 50 of which are included in the 170 mentioned There are balconies for outdoor treatment and two installations of X Ray apparatus Consulting Physicians Dr Richard Petch and Dr Richard Turner Physicians Dr William A Evelyn and Dr G W Micklethwait Consulting Surgeons Mr Frederick Shann and Mr William H Jalland Surgeons Mr G Wilfred Gostling, Dr Noel L Hood, Mr Gerald S Hughes, and Mr W Paynter Noall Ophthalmic Surgeon Dr Peter Macdonald Assistant Ophthalmic Surgeons Dr M D Ferguson, Dr J Acomb, and Dr T H Barton Electro therapeutic Department Dr Hinton E Bateman and Dr J G Craig Anæsthetists Mr Robert Fell and Dr Stanley Upton Assistant Anæsthetist Dr J H Sutcliffe Consulting Dental Surgeon Mr Walter Glaisby Dental Surgeon Mr Leonard A Glaisby

II —SCOTLAND

THE UNIVERSITIES

UNIVERSITY OF EDINBURGH

Four Degrees in Medicine and Surgery are conferred by the University of Edinburgh—viz, Bachelor of Medicine (M B), Bachelor of Surgery (Ch B) Doctor of Medicine (M D), and Master of Surgery (Ch M) The degree of Bachelor of Surgery cannot be conferred on any person who does not at the same time obtain the degree of Bachelor of Medicine and similarly the degree of Bachelor of Medicine is not conferred on any person who does not at the same time obtain the degree of Bachelor of Surgery

A diploma in Tropical Medicine and Hygiene (D T M and H) is granted to graduates in Medicine and Surgery of the University of not less than six months' standing, and to Registered Medical Practitioners who, having resided in a tropical country, may be approved by the Senatus, on the recommendation of the Faculty of Medicine

No one is admitted to the degrees of *Bachelor of Medicine* and *Bachelor of Surgery* who has not been engaged in Medical and Surgical study for five years. No course of lectures will be allowed to qualify unless the lecturer certifies that it has embraced at least 100 lectures or 50 lectures as may be required by the regulations, and that the student has also duly performed the work of the class

Candidates for the degrees of M B and Ch B must have attended for at least three academic years the medical and surgical practice either of the Royal Infirmary Edinburgh or of a general hospital elsewhere which accommodates not fewer than 80 patients and possesses a distinct staff of physicians and surgeons They must have attended Clinical Surgery during a course or courses extending over not less than nine months and courses of instruction in all the subsidiary subjects They must have personally conducted, under the superintendence of a registered medical practitioner 20 cases of labour at least.

With respect to the places and institutions at which the studies of the candidate may be prosecuted the following regulations have effect —Two of the five years of medical study must be spent in the University of Edinburgh The remaining three years may be spent in any University of the United Kingdom, or in any Indian, Colonial, or Foreign university recognised for the purpose by the University Court or in such medical schools or under such teachers as may be recognised for the purpose by the University Court Of the subjects of study—viz Anatomy Practical Anatomy, Chemistry, Practical Chemistry, Materia Medica, Physiology, Practical Physiology Practice of Medicine Surgery, Midwifery and Diseases of Women, Pathology, Practical Pathology Physics, Botany, Zoology, Medical Jurisprudence, and Public Health—not less than one half must be taken in the University of Edinburgh, which corresponds to the two years above referred to

Women are admitted to graduation in medicine under practically the same conditions as men, excepting that, until provision is made in the University for instruction of women in all subjects of the medical curriculum the regulations as to places of study contained in the foregoing paragraph do not apply to them Women who study in Edinburgh receive their instruction from recognised Extra Academical Teachers, who are Lecturers in the School of Medicine for Women, Surgeons Hall

The fee to be paid for the degrees of Bachelor of Medicine and Bachelor of Surgery is £23 2*s*, and the proportion of this sum to be paid by a candidate at each division of the examination shall be as follows—viz. For the First Division of the Examination (Botany, Zoology, Physics and Chemistry), £6 6*s*, for the Second Division (Anatomy and Physiology), £5 5*s*, for the Third Division (Pathology and Materia Medica and Therapeutics) £4 4*s*, and for the Final Division (Surgery and Clinical Surgery Medicine and Clinical Medicine, Midwifery, Clinical Gynæcology, and Forensic Medicine and Public Health), £7 7*s*

Bachelors of Medicine and *Bachelors of Surgery* may proceed to the degrees of *Doctor of Medicine* and *Master of Surgery* after they have spent one year in the medical or surgical wards respectively of a hospital or the Military or Naval Medical Services, or in scientific work bearing directly on their profession, or two years in practice In each case an examination must be passed and a thesis submitted for approval of the Faculty The fee to be paid for the degree of M D is £15 15*s* and the fee to be paid for the degree of Ch M is £15 15*s*

Diploma in Psychiatry —Courses of instruction have also been instituted for a Diploma in Psychiatry open to all legally qualified Medical Practitioners who conform with the Regulations There shall be two examinations for the Diploma, the first comprising the subjects of Anatomy of the Nervous System, Physiology Histology and Chemistry of the Nervous System, Pathology of the Brain and Nervous System, and Practical Bacteriology in its relation to Mental Diseases, and the second examination comprising the subjects of Psychology with Experimental Psychology, Clinical Neurology, and Psychiatry (systematic and clinical). The fee for each examination shall be £5 5*s*

Professors—Chemistry James Walker D Sc, F R S Zoology J Cossar Ewart, M D Botany I Bayley Balfour, M D Physiology Sir E A Schäfer F R S Anatomy Arthur Robinson M D Pathology James Lorrain Smith M D Materia Medica Sir Thomas R Fraser, M D, F R S Forensic Medicine Harvey Littlejohn, M B, F R C S E Public Health C Hunter Stewart M B, D Sc. Midwifery Sir John Halliday Croom, M D Surgery Alexis Thomson, M D F R C S E Medicine Geo Lovell Gulland M D Clinical Surgery F M Caird M B F R C S Clinical Medicine Sir Thomas R Fraser, M D William Russell, M D and Geo Lovell Gulland

The University of Edinburgh is especially rich in scholarships and prizes in medical subjects Full particulars can be obtained from the Dean of the Medical Faculty

SCHOOL OF MEDICINE OF THE ROYAL COLLEGES Edinburgh —The number of students varies much in the classes and subjects It is within the limit to say that about 1000 students avail themselves each session of the opportunity of attending the school The lectures qualify for the University of Edinburgh and other Universities, the Royal Colleges of Physicians and Surgeons of London, Edinburgh and Dublin, the Faculty of Physicians and Surgeons of Glasgow, and other Medical and Surgical and Public Boards

The anatomy rooms and laboratories will open and the lectures commence on Oct 10th

In accordance with the statutes of the University of Edinburgh one-half of the qualifying classes required for graduation may be attended in this school The regulations require that the fee for any class taken for graduation in

Edinburgh shall be the same as that for the corresponding class in the University The whole education required for graduation at the University of London may be taken in this school.

The appointment of Resident Physician to the wards in the Royal Infirmary under the care of the Ordinary Physicians is open to those members of their clinical class who have held the office of clerk in their wards for at least six months Six Residentships are appointed for a period of six months each. Resident Surgeons are also appointed by the Ordinary Surgeons to the Hospital In all respects the students are taught under regulations similar to those at the University of Edinburgh and the other Universities of Scotland and they receive similar certificates at the close of each session The courses on special non-qualifying subjects have for the last quarter of a century formed a marked feature of the school Indeed, such medical subjects could be studied in Edinburgh only in this school until lately when the University of Edinburgh appointed from the school lecturers on Diseases of the Eye Insanity and Diseases of Children to take charge of classes intra mural ly A list of the classes and lecturers will be found below Special courses of instruction for dental students and for women are also included in the curriculum of this school

Lecturers and Fees —Winter Session Anatomy Practical Anatomy, and Demonstrations Dr Ryland Whitaker (£3 5s and £4 4s), Chemistry (Practical &c.) Mr Gemmell and Dr T W Drinkwater*, Physiology (Institutes of Medicine) Dr Alex. Goodall (£3 5s), General Pathology &c Dr James Miller (£3 5s), Biology Mr Malcolm Laurie and Mr C R Whittaker (£3 5s), Zoology, Mr Malcolm Laurie and Mr H. Miller†, Physics Dr Dawson Turner and Mr A. McKendrick (£3 5s), Meteorology Dr Dawson Turner and Mr A. McKendrick (£2 2s), Bacteriology Dr Taylor Grant and Dr James Miller, Practice of Physic Dr R A. Fleming, Dr E Bramwell and Dr A. Dingwall Fordyce (£3 5s) Surgery Mr Scot Skirving Mr Chiene Mr H Wade Mr J W Struthers Mr W J Stuart and Mr L Beesly (£3 5s), Materia Medica &c Dr Craig and Dr J Orr† (£3 5s), Midwifery, &c. Dr Hart Dr Ballantyne Dr Haig Ferguson Dr Elsie Inglis, Dr McGibbon Dr Barbour Simpson, and Dr Davidson (£3 5s) Medical Jurisprudence &c, Dr Aitchison Robertson (£3 5s), Public Health Dr W Robertson (£2 2s), Hospital Practice (Edinburgh Royal Infirmary) Physicians Sir R W Philip Dr Graham Brown Dr F D Boyd Dr R A. Fleming and Dr Brewis for Gynæcology Surgeons Mr Cathcart Mr Hodsdon Mr Wallace and Mr Miles (perpetual hospital ticket £12) Clinical Medicine Sir R. W Philip Dr Graham Brown Dr F D Boyd Dr R A. Fleming and Dr Brewis for Gynæcology (£3 5s), Clinical Surgery Mr Cathcart, Mr Hodsdon Mr Wallace and Mr Miles (£3 5s), Tuberculosis Sir R W Philip (Clinical) Dr Miller (Pathological) Vaccination Dr W G A Robertson and Dr Wm D D Small (£1 1s), Diseases of Ear, Nose, and Throat Dr J Malcolm Farquharson and Dr J S Fraser (£2 2s) Diseases of the Eye Dr J V Paterson (£2 2s) Ophthalmoscopy Dr A. H H Sinclair (£2 2s), Gynæcology Dr Haig Ferguson and Dr Elsie Inglis (Systematic) Dr Brewis and Dr J Haig Ferguson (Clinical) and Dr J W Ballantyne (Advanced) (£2 2s) Physical Methods Dr A. D Webster (£2 2s), Medical Electricity Dr Dawson Turner (£2 12s 6d) Tropical Diseases Major D G Marshall I M S (£2 2s) Diseases of Children Dr A. Dingwall Fordyce† (£2 2s) Diseases of the Skin Dr F Gardiner† (£2 2s) Summer Session Practical Anatomy and Demonstrations Dr Ryland Whitaker (£2 2s), Practical Physiology Dr Goodall (£3 3s) Biology Mr M Laurie ‡ Dr Newbigin and Mr C R Whittaker (£3 5s) Practical Chemistry and Analytical Chemistry Mr Gemmell and Dr Drinkwater§, Practical Bacteriology Dr Taylor Grant and Dr James Miller, Materia Medica Dr Craig and Dr J Orr, Diseases of the Eye Dr J V Paterson (£2 2s); Medical Psychology and Insanity, Dr John Keay (£2 2s), Medical Jurisprudence Dr Aitchison Robertson, Public Health Dr W Robertson (£2 2s), Gynæcology Dr Brewis (£2 2s), Midwifery Lectures Dr Ballantyne, Dr Haig Ferguson Dr McGibbon Dr Barbour Simpson and Dr Davidson (£3 5s), Practical Gynæcology Dr Elsie Inglis (£2 2s), Operative Surgery, Mr Scot Skirving Mr Chiene, Mr H Wade, Mr J W Struthers, Mr W J Stuart, and Mr L. Beesly (£3 3s), Practical Pathology, Dr James Miller (£3 8s); Physics, Dr Turner and Mr A. McKendrick‡ (£3 5s); Practical Medicine and Physical Diagnosis Dr Fleming, Dr A. Goodall and Dr J D Comrie (£3 3s), Clinical Medicine, Sir R. W Philip Dr Graham Brown Dr Boyd, Dr R A Fleming and Mr Brewis for Gynæcology (£2 4s), Vaccination Dr W G A. Robertson and Dr W D D Small (£1 1s); Physical Methods Dr A. D Webster (£2 2s), Diseases of Ear, Nose and Throat Dr J Malcolm Farquharson and Dr J S Fraser (£2 2s), Tropical Diseases Major D G Marshall, I M.S (£2 2s), Medical Electricity Dr Dawson Turner, Meteorology Dr Dawson Turner and Mr A. McKendrick Tuberculosis Sir R. W Philip (Clinical) and Dr Miller (Pathological), Diseases of Children Dr. A. Dingwall Fordyce (£2 2s), Diseases of the Skin, Dr. F Gardiner (£2 2s)

The minimum cost of the education in this School of Medicine for the Triple Qualification of Physician and Surgeon from the Royal Colleges of Physicians and Surgeons of Edinburgh and the Faculty of Physicians and Surgeons of Glasgow including the fees for the Joint Examinations is about £120 payment of which is distributed over the period of study There is no composition fee

Further particulars regarding the school also its calendar may be had on application to the Dean of the School, 11, Bristo-place, Edinburgh

* Lectures £3 5s Practical, £3 3s Analytical £2 a month, or £5 for three months † Also in Summer Session. ‡ Also in Winter Session. § Practical, £3 3. Analytical, £2 a month, or £5 for three months

N B.—Where two or more lecturers appear as teaching the same subjects their lectures are not conjoined, but each gives an independent course

Clinical Instruction —ROYAL INFIRMARY Edinburgh.—This hospital has 921 beds and 42 cots for children. Courses of Clinical Medicine and Surgery are given by the physicians and surgeons Special instruction is given on Diseases of Women Physical Diagnosis, Diseases of the Skin, Diseases of the Eye, the Ear the Larynx, and the Teeth. Separate wards are devoted to Venereal Diseases Diseases of Women Diseases of the Eye the Ear Throat and Nose, and the Skin and also to cases of Incidental Delirium or Insanity There are also large and complete Medical Electrical and X Ray and Bathing Departments Three wards are specially set apart for Clinical Instruction to Women Students Post-mortem examinations are conducted in the anatomical theatre by the pathologist and his assistants, who also give practical instruction in Pathological Anatomy and Histology The fees for hospital attendance are as follows—viz. Perpetual ticket, in one payment £12, annual ticket, £6 6s, six months, £4 4s, three months £2 2s monthly, £1 1s Separate payments amounting to £12 12s entitle the student to a life ticket. No fees are paid for any medical or surgical appointment The appointments are as follows 1. Resident physicians and surgeons are appointed and live in the house free of charge The appointment is for six months but may be renewed at the end of that period by special recommendation 2. Non resident house physicians and surgeons and clinical assistants are appointed for six months The appointment may be renewed for a like period by special recommendation 3 Clerks and dressers are appointed by the physicians and surgeons These appointments are open to all students and junior practitioners holding hospital tickets 4 Assistants in the Pathological Department are appointed by the pathologist

Staff —*Consulting* Physicians Sir James Affleck, Dr Alexander James Dr Byrom Bramwell and Emeritus Professor W S Greenfield. Physicians Sir Thomas R. Fraser Sir R W Philip, Professor William Russell Professor Lovell Gulland Dr Graham Brown and Dr F D Boyd Assistant Physicians Dr R A. Fleming, Dr Harry Rainy Dr Chalmers Watson, Dr Edwin Bramwell, Dr Edwin Matthew Dr W T Ritchie Dr John Eason Dr John D Comrie and Dr Alex Goodall Consulting Surgeons Mr A. G Miller Dr C W MacGillivray, Emeritus Professor John Chiene C B, and Mr J M Cotterill Surgeons Mr F M Caird Mr C W Cathcart, Mr J W B Hodsdon Mr David Wallace, Mr Alexis Thomson, Mr Alexander Miles and Mr John

W Dowden Assistant Surgeons Mr A. A. Scot Skirving, Mr George L Chiene, Mr W J Stuart, Mr J W Struthers, Mr Henry Wade, Mr D P D Wilkie, and Mr Denis Cotterill Consulting Gynæcologist Professor Sir Halliday Croom. Gynæcologists Dr A. H F Barbour and Mr N T Brewis Assistant Gynæcologists Dr J Haig Ferguson and Dr William Fordyce Physicians to the Skin Department Dr Norman Walker and Dr Fred Gardiner Assistant Physician to the Skin Department Dr R Cranston Low Consulting Surgeons to the Ophthalmic Department Sir George A Berry and Dr George Mackay Surgeons to the Ophthalmic Department Dr W G Sym and Dr J V Paterson Assistant Surgeons to the Ophthalmic Department Dr A. H H Sinclair and Dr H M Traquair Consulting Surgeons to the Ear and Throat Department Dr P M'Bride and Dr R M'Kenzie Johnston Surgeons to the Ear and Throat Department Dr A Logan Turner and Dr J Malcolm Farquharson Assistant Surgeons to the Ear and Throat Department Dr John S Fraser and Dr John D Lithgow Consulting Surgeon to the Dental Department Mr William Guy Surgeon to the Dental Department Mr J H Gibbs Extra Medical Electrician (for Radium Cases) Dr Dawson Turner Medical Electicians Dr W Hope Fowler and Dr Archibald M'Kendrick. Pathologist Professor Lorrain Smith Clinical Pathologist, Miss Fitzgerald Assistant Pathologist Dr James Miller

ROYAL HOSPITAL FOR SICK CHILDREN, Sciennes road, Edinburgh —This hospital contains 120 beds, and is fitted with every modern improvement A fully equipped out-patient department (medical and surgical) is conducted daily in a building adjoining the hospital Systematic courses of instruction, which qualify for graduation in the Edinburgh University and elsewhere, are given from time to time throughout the year by the staff. Students may enter at any time Full particulars can be obtained from the Registrar at the hospital

Staff —Consulting Physicians Dr J Carmichael, Dr J Playfair, and Dr T M Burn Murdoch. Consulting Surgeon (vacant) Consulting Surgeon Dentist (vacant). Consulting Pathologist Professor J Lorrain Smith. Consulting Bacteriologist Professor J Ritchie Ordinary Physicians Dr J Thomson, Dr J S Fowler, and Dr J W Simpson. Surgeon Mr H J Stiles Ophthalmic Surgeons Sir G A. Berry, and Dr A. H Sinclair Assistant Surgeon Mr J Fraser Surgeon to Ear and Throat Department Mr W G Porter Medical Electrician Dr J W Spence Extra Physicians Dr Dingwall Fordyce, Dr C McNeil and Dr Norman S Carmichael Anæsthetists Dr M H Howard Jones and Dr Lancelot Foster

EYE, EAR, AND THROAT INFIRMARY OF EDINBURGH, 6, Cambridge street, Lothian road —Clinical Lectures and Instruction are given in this institution, which is open at 1 o'clock daily for outdoor patients for Eye Diseases, Mondays, Thursdays, and Saturdays at 12 noon, and Tuesdays and Fridays at 4 P M. for outdoor Ear, Nose, and Throat Patients Special Practical Ophthalmoscopic Classes by arrangement Patients whose diseases require operations or more than ordinary care are accommodated in the house. Consulting Surgeon Dr Logan Turner (Ear, Nose and Throat Department) Surgeons Dr William George Sym, Dr J V Paterson, Dr W G Porter, Dr E M Lithgow, Dr W T Gardiner, Dr John M Darling, and Dr Ernest H Cameron Honorary Anæsthetist Mr J H Gibbs Dental Surgeon Mr G W Watson. Treasurer and Secretary Mr J P Watson, W S, 32, Charlotte-square

UNIVERSITY OF GLASGOW

The University of Glasgow is both a teaching and a degree-granting body, but admits to graduation only candidates whose preliminary examination and course of study conform to its own regulations Within certain limits instruction given by recognised medical schools and teachers may be accepted, but not less than one-half of the subjects other than clinical must be taken in this or some other recognised university, and at least two years of the course must be taken in Glasgow University Six degrees, open both to men and women, are conferred M B and Ch B (always conjointly), M D and Ch M, B Sc in Public Health, D Sc in Public Health, and B Sc in Pharmacy A Preliminary Examination must be passed in (1) English (2) Latin, (3) Elementary Mathematics, and (4) Greek, or French, or German, or Italian, with possible options to students whose native language is not English Candidates taking the University preliminary examination are not obliged to pass in all the four subjects at one examination but must do so at not more than two occasions

For the degrees of M B and Ch B a curriculum of five years is required The candidate must during his curriculum, have attended a course or courses of instruction in each of the following subjects of study, extending over not less than the number of terms specified in each case, and including such class examinations as may be prescribed in connexion with the several courses —Chemistry (including Organic Chemistry), two terms, with Practical Chemistry, one term, Physics (with practical work), one term, Botany (with practical work), one term, Zoology (with practical work), one term, Anatomy and Practical Anatomy, five terms, Physiology and Practical Physiology, three terms, Materia Medica and Therapeutics (together or separately), each subject, one term, Pathology and Practical Pathology three terms, Medical Jurisprudence and Public Health (together or separately), each subject, one term, Midwifery and Diseases peculiar to Women and to Infants, two terms, Surgery, two terms, Medicine, two terms Candidates must attend at least three years the Medical and Surgical Practice of a recognised hospital accommodating at least 80 patients and having a distinct staff of physicians and surgeons At least nine months' hospital attendance is required on both Clinical Surgery and Clinical Medicine, and the student must have acted for six months as clerk in medical and dresser in surgical wards and must have had six months' outdoor practice, he must also have attended a course of Mental Diseases and of Practical Pharmacy (25 meetings) must have been properly instructed in Vaccination at a public vaccination station, and must have attended at least 20 cases of labour and the Practice of a Lying in Hospital The University also requires further study in various special subjects

There are four Professional Examinations, the first comprising Botany, Zoology, Physics and Chemistry, the second comprising Anatomy and Physiology, the third comprising Materia Medica and Therapeutics and Pathology, and the fourth or final, comprising Medical Jurisprudence and Public Health, Surgery and Clinical Surgery, Practice of Medicine and Clinical Medicine and Midwifery and the Diseases peculiar to Women and to Infants

The degrees of M D (Doctor of Medicine) and Ch M (Master of Surgery) are higher degrees in Medicine and Surgery respectively, and candidates (not under 24 years of age) who have previously obtained the double bachelorship may be admitted to either M D or Ch M on completing the after course prescribed, including an examination in Clinical Medicine for M D and an examination in Surgical Anatomy, operations on the dead body, and Clinical Surgery for Ch M

Fees —The Fees for M B and Ch.B are £23 2*s* The class fee in each subject of the curriculum for M B and Ch.B is £2 2*s*, £3 3*s*, or £4 4*s*, and the present fees for hospital attendance are £10 10*s* The fee for M D is £15 15*s*, and for Ch.M £15 15*s*

The great majority of the students take their hospital course at the Western Infirmary, or the Royal Infirmary, where clinical instruction is given by professors of the University and others Clinical instruction on Fevers is given at Ruchill and Belvidere Hospitals, while special courses, largely of a practical nature and embracing work in Hospital or Asylum wards, are conducted by University Lecturers on the Ear, the Throat and Nose, Dermatology, Ophthalmology, Venereal Diseases, and Insanity Queen Margaret College, sometime conducted as a separate institution for the higher education of women was made over to the University in 1892, and in it medical classes for women are conducted under University professors and other lecturers appointed by the University Court whilst for clinical instruction female students are admitted to the Royal Infirmary

Professors—Natural Philosophy A. Gray, LL D F R.S. Materia Medica Ralph Stockman, M D Chemistry (Vacant) Surgery Sir William Macewen, M D, F R S,

and Robert Kennedy, M D, D Sc Practice of Medicine T K Monro M D, and W K Hunter, M D D Sc Midwifery Murdoch Cameron, M D, and J M Munro Kerr, M D Anatomy Thomas H Bryce M A., M D Zoology John Graham Kerr, M A, F R S Botany F O Bower, D Sc F R S Physiology D Noël Paton, B Sc M D, F R S Forensic Medicine John Glaister M D Pathology Robert Muir, M A., M D, F R S, and J H Teacher, M A. M D

In this University Bursaries and Prizes to the annual amount of over £1000 are appropriated to students in the Medical Faculty and there are also several Scholarships and Fellowships which may be held by medical students who have gone through the Arts course A full list will be found in the University Calendar

THE ANDERSON COLLEGE OF MEDICINE, Dumbarton road, Glasgow, W —The following courses are given, which qualify for all the licensing boards and for the Universities of London, Durham, Edinburgh, and Glasgow (the latter two under certain conditions) —In winter Anatomy and Practical Anatomy, (Vacant), Physics, Prof P Bennett, Chemistry, Prof J R Watson, Botany Prof. B G Cormack, Zoology, Prof W F Mackenzie, Physiology, Prof H Morton, Materia Medica, Prof J P Duncan, Midwifery and Diseases of Children Prof Wm D Macfarlane, Surgery Prof Arch Young, Practice of Medicine, Prof J M Cowan, Ophthalmic Medicine and Surgery Prof A. J Ballantyne, Aural Surgery Prof. J G Connal, Diseases of Throat and Nose, Prof John Macintyre, Public Health (Laboratory Course) Prof C C Douglas, Dermatology, Dr J G Tomkinson, Dental Bacteriology, Prof C C Douglas, Dental Surgery and Pathology, J Watt, Dental Anatomy and Physiology W F Mackenzie, Dental Metallurgy Mr Charles Read In summer Anatomy Practical Anatomy and Osteology, Practical Chemistry, Botany and Practical Botany, Zoology and Practical Zoology, Practical Physiology, Practical Materia Medica and Pharmacy, Medical Jurisprudence (Prof C C Douglas), Diseases of Women (Prof Wm D Macfarlane), Operative Surgery Ophthalmic Medicine and Surgery, Aural Surgery, Mental Diseases (Dr Ivy Mackenzie), and Public Health (Lecture Course and Laboratory Course) The Chemical Laboratory is open daily from 10 to 5 The Dissecting room is open in winter from 9 A M to 5 P M and in summer from 7 A M to 5 P M The students are assisted in their dissections by the Professor and Demonstrators by whom frequent examinations and demonstrations on the parts dissected are conducted The supply of subjects for dissection is ample Candidates for the Licence in Dental Surgery can obtain the full medical curriculum in Anatomy Chemistry Physiology Surgery Practice of Medicine and Materia Medica The courses special to Dentistry are also conducted in the Anderson College of Medicine

The buildings are situated in Dumbarton road immediately to the west of the entrance to the Western Infirmary and adjoining the University Extensive accommodation is provided for Practical Anatomy Practical Chemistry Practical Botany Practical Zoology Practical Physiology Practical Pharmacy Operative Surgery and Public Health Ample provision has also been made for the comfort of students

The Carnegie Trust extends its benefactions to students at Anderson s College Medical School Full particulars may be obtained from Sir W S McCormick, the Carnegie Trust Offices Merchants Hall Edinburgh

Communications relating to the Medical School to be addressed to the Secretary of the Medical Faculty The Anderson College of Medicine Glasgow W Communications relating to the Preliminary Examination in General Education to be addressed to Mr Hugh Cameron M A., F E I S Educational Institute Office 34 North Bridge street Edinburgh Communications relating to the Triple Qualification to be addressed to Mr Alexander Duncan B A. LL D, Royal Faculty Hall, 242 St Vincent-street Glasgow

The Winter Session will open on Monday Oct 16th 1916 and will close on Thursday March 22nd 1917

The Summer Session will open on Wednesday April 25th 1917 and will close on Wednesday July 4th 1917

ST MUNGO S COLLEGE AND GLASGOW ROYAL INFIRMARY —The classes in St Mungo s College qualify for the English Scotch, and Irish Conjoint Boards and, under certain conditions, for the various universities, including the University of London Students who have fulfilled the conditions of the Carnegie Trust as regards Scottish birth or extraction, age (16 years) and Preliminary Examination, are eligible for the benefits of this Trust during the whole course of their studies at St Mungo's College The classes are open to male and female students equally The minimum fees for all the lectures including hospital attendance, necessary for candidates for the Diplomas of the English or Scotch Colleges of Physicians and Surgeons, amount to £65 Further particulars can be obtained from a syllabus which may be procured free on application to the Secretary of the Medical Faculty, 86, Castle street, Glasgow

GLASGOW WESTERN MEDICAL SCHOOL —This School has been closed during the war

QUEEN MARGARET COLLEGE, University of Glasgow (Women s Department of the University) —The classes are taught by professors of the University and other lecturers appointed by the University Court, and it is governed by the University Court and Senate. The curriculum, regulations, and fees are the same as those of the male students, and the University degrees are open to women on the same conditions as to men They have access to the University Museum and can borrow books from the University Library, besides having a library of reference in Queen Margaret College The School of Medicine is a special feature of the College, and gives full preparation for the medical degrees of the University In July 1894 for the first time in the history of any Scottish University, women students graduated in medicine in Glasgow University 210 women have now taken the degree of M B C M, or M B, Ch.B of the University of Glasgow and 20 the degree of M D The women students attend classes in the various University Buildings at Gilmore hill, Queen Margaret College and the Royal Infirmary Owing to the increase in the number of women medical students additional accommodation for session 1916–17 is provided for the classes of Chemistry and Anatomy in Queen Margaret College Excellent facilities for clinical work are given in the Royal Infirmary, in the Maternity, and other hospitals The Arthur Scholarship is open every third year to students of first year, other Bursaries are open in Arts and Medicine, and by an ordinance of the Universities Commissioners women are admitted to certain University bursaries scholarships and fellowships There is a house of residence for the students of the College coming from a distance The Winter Session will open on Oct 16th

ROYAL INFIRMARY Glasgow —The ancient connexion between the University of Glasgow and the Royal Infirmary was revived in 1911, when four University Chairs and several University Lectureships were established at the infirmary St Mungo s College is situated in the infirmary grounds The infirmary has including the Ophthalmic Department 835 beds There are special beds and wards for diseases of women, of the throat nose and ear, skin venereal diseases burns and septic cases The wards are open to Women Students At the Out-door Department the attendances in 1915 numbered over 140,000 In addition to the large medical and surgical departments there are departments for special diseases—viz diseases of women of the throat and nose of the ear, of the eye, of the skin, and of the teeth Five house physicians and 12 house surgeons having a legal qualification in medicine and surgery, who board in the hospital free of charge, are appointed every six months Clerks and dressers are appointed by the physicians and surgeons As a large number of cases of acute diseases and accidents of a varied character are received these appointments are very valuable and desirable There is a modern and fully equipped Electrical Pavilion, and year by year the latest and most approved apparatus for diagnosis and treatment has been added The fees are as follows (a) For hospital practice, including attendance at the out door department, at the pathological department post-mortem examinations, and the use of the museum Perpetual ticket, £7, six months, £2 2s, three months, £1 1s, separate payments amounting to £7 7s entitle the student to a perpetual ticket, on return of previous season tickets;

(b) for Clinical Lectures, six months, £3 10s, three months, £1 15s, (c) Vaccination, £1 1s, Pathology, £4 4s, Bacteriology, £2 2s

Staff.—Visiting Physicians Dr W K Hunter, Dr John M Cowan, Dr Mackenzie Anderson, Dr Wm R Jack, and Dr John Henderson Visiting Surgeons Mr J A. Adams, Mr J H Pringle Mr H Rutherfurd, Mr Peter Paterson, Dr Robert Kennedy, Dr A N McGregor, and Mr Thomas Kay Assistant Physicians Dr James Scott, Dr Archd W Harrington, and Dr W Watson Assistant Surgeons Mr John Patrick and Mr John A. C Macewen Dispensary Physicians Dr D H Macphail, Dr. Arthur Crawford, Dr David Macdonald Dr. John C Middleton, and Dr A. M Kennedy Dispensary Surgeons Mr A G Faulds, Mr James Battersby, Mr Donald Duff, Mr Milne McIntyre, Mr Alex. J Couper, and Mr Robert S Dewar Temporary Dispensary Surgeons Mr W Laird and Mr J W Anderson Extra Dispensary Physicians Dr Agnes Picken, Dr T S Barrie, Dr D T C Frew, and Dr J M Morgan Extra Dispensary Surgeons Mr Wm C Mackie, Mr J A. G Burton, Mr P H Robertson, Dr James Taylor, and Dr J MacIntyre Consulting Surgeon for Diseases of the Eye Dr A Maitland Ramsay Surgeon for Diseases of the Throat and Nose Dr John Macintyre Gynæcologists Dr Balfour Marshall and Dr J M Munro Kerr Surgeon for Diseases of the Ear Dr J Kerr Love Physician for Diseases of the Skin Dr George McIntyre Pathologist Dr J H Teacher Assistant in Pathological Institute Dr J A G Burton. Bacteriologist Dr J A Campbell Medical Electrician Mr J R Riddell Assistant Medical Electricians Dr Samuel Capie, Dr Katharine M Chapman Dr J G Graham, and Dr A M Kennedy Anæsthetists Dr H P Fairlie, Dr F L Napier, Dr A S Richmond, Dr Ellen Brown Orr, and Mr W Laird Vaccinator Dr H H Borland Dispensary Specialists —Diseases of Women Dr James Taylor, Dr A. L McIlroy, and Dr James Hendry Diseases of the Ear Dr James Adam, Dr James Harper, and Dr John W Leitch, Diseases of the Skin Dr G McIntyre, Diseases of the Throat and Nose Dr P N Grant and Dr John Donald, Diseases of the Teeth Mr W Taylor and Mr W R Taylor, Venereal Diseases, Dr David Watson and Dr John Gilchrist Ophthalmic Department —Surgeon Dr Maitland Ramsay, Assistant Surgeons Dr John Rowan, Dr H W Thomson Dr John Gilchrist, Dr J A Wilson, and Dr W H Kiep, Extra Dispensary Surgeons Dr Andrew Ross Muir, Dr T S Barrie, and Dr E B Orr, Electrician Dr Gilchrist, Pathologist Dr John H Teacher, Anæsthetist Dr R H Henderson, Superintendent Dr J Maxtone Thom

GLASGOW WESTERN INFIRMARY —This hospital adjoins the University of Glasgow Number of beds upwards of 600 Special wards are set apart for Diseases of Women and for Affections of the Skin In the out-patient department there are special cliniques for Diseases of Women and for Diseases of the Throat Ear, Teeth, and Skin The Clinical Courses are given by the physicians and surgeons, each of whom conducts a separate class, and students require to enter their names at the beginning of the session for the class which they propose to attend Special instruction is given to junior students by tutors or assistants, and clinical clerks and dressers are selected from the members of the class All the courses of clinical instruction are recognised by the University of Glasgow and the other boards in the kingdom In the Pathological Department the course is both systematic and practical, also post-graduate courses, and extends through the winter and following summer, these are likewise recognised by the University for graduation Fifteen resident assistants are appointed annually, without salary, from those who have completed their course The fee for hospital attendance is £10 10s and the fees for clinical instruction are £3 3s for the Winter Session and £2 2s for the Summer Session

A Clinical Laboratory has been opened, and students will receive laboratory instruction from the lecturer on clinical methods

Staff—Honorary Consulting Surgeons Sir Hector C Cameron and Sir George T Beatson K C B Honorary Consulting Gynæcologist Dr W L Reid Visiting Physicians Dr Ralph Stockman Dr Wm MacLennan Dr R. Barclay Ness Dr T K Monro and Dr J W Nicol (Skin Department). Visiting Surgeons Sir W Macewen Dr T K. Dalziel, Mr James H Nicoll, Dr Duncan Macartney, Mr G H Edington, and Dr John Morton. Gynæcologist Dr Murdoch Cameron Assistant Physicians Dr James Carslaw, Dr John S M'Kendrick Dr Frank Charteris, and Dr John Gracie Assistant Surgeons Dr Arch Young, Dr M Logan Taylor, and Dr C C Cuthbert. Dispensary Physicians Dr John P Duncan, Dr Geo. Allison Allan, Dr Jas R C Greenlees, Dr G H Clark, and Dr D R Kilpatrick Dispensary Surgeons Dr Alex H. Edwards, Dr R B Carslaw, Dr David Dickie, Dr Wm. Rankin, Dr J M Renton, Dr Roy Young, and Dr W A. Campbell Honorary Anæsthetists Dr James P Boyd, Dr R Home Henderson, and Dr H P Fairlie Dispensary Gynæcologists Dr S Cameron and Dr Jas H Martin. Extra Dispensary Physicians Dr G B Fleming, Dr Hugh Morton, Dr J W McNee and Dr Adam Patrick. Dispensary Physician for Diseases of the Skin Dr J G Tomkinson Extra Dispensary Surgeons Dr W A Sewell and Dr Chas Bennett. Dispensary Surgeon for Diseases of the Ear Dr Thomas Barr Dispensary Surgeon for Diseases of the Throat and Nose Dr Walker Downie. Honorary Consulting Physician for Mental Disorders Dr L R Oswald Consulting Medical Electrician Dr D J Mackintosh, M V O, LL D Medical Electricians Dr J G Tomkinson, Dr Archd Hay, and Dr W F Somerville. Pathologist Dr Robert Muir Clinical Pathologist Dr J S Dunn Assistant Pathologists Dr Geo Haswell Wilson and Dr J W McNee Vaccinator Dr J L Carstairs. Dental Surgeon Mr W D Woodburn, L D S Superintendent Dr Donald J Mackintosh M V O LL D Matron Miss H Gregory Smith Secretary and Treasurer J Matheson Johnston, C A, 87, Union street

ROYAL HOSPITAL FOR SICK CHILDREN, Yorkhill Glasgow —This institution, which was founded in 1882, consists of (1) a new hospital at Yorkhill containing 204 cots built on an elevated and central site close to the University and opened in July, 1914, (2) a Dispensary or Out patient Department in West Graham street, opened in October, 1888 and (3) a country branch at Drumchapel, Dumbartonshire containing 24 cots opened in 1903 Children treated must be under 12 years of age and suffering from non infectious diseases. In the old hospital containing 74 cots about 1200 patients were treated annually and in the Out patient Department over 12,000 are treated annually involving nearly 50 000 attendances *Hospital and Country Branch*—Honorary Medical Officers —Consulting Physicians Dr George S Middleton, Dr R Barclay Ness, and Dr J B Mackenzie Anderson Consulting Surgeons Dr T Kennedy Dalziel Mr R. H Parry and Mr James H Nicoll Consulting Pathologist Professor Robert Muir M D F R C P E Visiting Physician Dr Leonard Findlay Visiting Surgeons Dr Alfred A. Young and Dr Alexander MacLennan Aurist and Laryngologist Dr J Walker Downie Oculist Dr John Rowan Dentist Dr Leslie C Broughton Head Pathologist Dr W Blair M. Martin *Dispensary*—Honorary Medical Officers —Physicians Dr A Bankier Sloan, Dr James R O Greenlees Dr James Girdwood Dr Agnes W Cameron, Dr W Hendrie Kirk, Dr Geoffrey B Fleming Dr J W McNee Dr Samuel J Moore, Dr Mary T Moore, and Dr Mabel Jones Surgeons Dr M Logan Taylor, Dr William Rankin Dr David Dickie Dr William A. Campbell Dr J Mill Renton Dr Charles Bennett, and Dr William A. Sewell Aurist and Laryngologist Dr James Harper Oculist Dr Walter H Kiep Dentist Dr Leslie C Broughton Head Information with regard to clinical instruction may be obtained from the Medical Superintendent.

GLASGOW OPHTHALMIC INSTITUTION 128 West Regent street (29 beds and six cots).—Clinical and systematic course of lectures for students during the winter and summer sessions In patients 1054, out- or dispensary patients 13,460 Operations on Wednesdays and Saturdays Honorary Consulting Surgeon Dr D N Knox Surgeon Dr A. Maitland Ramsay Assistant Surgeons Dr John Rowan Dr H. Wright Thomson Dr John Gilchrist Dr J A Wilson and Dr W H Kiep Extra Assistant Surgeons Dr A. R Muir, Dr T S Barrie and Dr Ellen B Orr Pathologist Dr J H. Teacher Electrician Dr John Gilchrist. Anæsthetist Dr R H Henderson The institution is the Ophthalmic Department of the Royal Infirmary A post-graduate course is given by Dr Ramsay and assistants during September Clinical

instruction is given in the summer session to students of the University and Queen Margaret College, and in winter to students of St Mungo's College and to all who take the class

GLASGOW EYE INFIRMARY, Berkeley street and Charlotte street —This institution the largest of its kind in Scotland was founded in 1824 The average number of new patients for the last ten years has been 26 026 and the total number of cases in 1914 was 27 195 The wards and dispensary are recognised by the University of Glasgow for the purpose of instruction in ophthalmology for graduation in medicine. Secretary and Acting Treasurer Harold John Black 88 West Regent street Glasgow House Superintendent James H. Archibald. The medical session opens in October The Medical Staff is as follows —Surgeons Dr A. Freeland Fergus, Dr Andrew Wilson Dr Leslie Buchanan Dr A J Ballantyne Dr A. Lewis MacMillan and Dr Henry L. G Leask. Extra Surgeons Dr W Cochrane Murray and Dr Brownlow Riddell Assistant Surgeons Dr W B. Inglis Pollock, Dr Samuel Capie and Dr J Barbour Stewart. Pathologist Dr M Logan Taylor Honorary Consulting Medical Electrician Dr James R. Riddell Honorary Anæsthetist Dr Fred L Napier A Post graduate Class will be held

GLASGOW EAR NOSE, AND THROAT HOSPITAL, 27 and 28 Elmbank crescent —14 beds and two cots New patients 3576 Attendances at out-patient department 13 040 Admitted to in-door department 210 Surgeon Dr Thomas Barr Assistant Surgeons Dr J Galbraith Connal Dr W S Syme and Dr J Stoddart Barr Extra Assistant Surgeons Dr H Whitehouse Dr G B Eadie and Dr John Donald. Clinical instruction is given in connexion with Dr Thomas Barr's course on Diseases of the Ear at the University Dr Connal's course on Diseases of the Ear at Anderson's College and Dr Syme's course on Diseases of the Throat and Nose at the Western Medical School

UNIVERSITY OF ST ANDREWS (UNITED COLLEGE ST ANDREWS AND UNIVERSITY COLLEGE DUNDEE)

Four degrees in Medicine and Surgery are conferred by the University of St Andrews—viz. Bachelor of Medicine (M B) Bachelor of Surgery (Ch B) Doctor of Medicine (M D) Master of Surgery (Ch M) and a Diploma in Public Health The whole curriculum may be taken at University College, Dundee or the first two years of the course may be taken at St Andrews and the remaining three years in Dundee The degrees of M B and Ch.B shall always be conjoined Before commencing his medical studies each student shall pass a Preliminary Examination in (a) English (b) Latin (c) Elementary Mathematics and (d) one of the following optional subjects (α) Greek (β) French (γ) German (δ) Italian, (ε) any other approved Modern Language A degree in Arts or in Science in any of the Universities of the United Kingdom and in some colonial and foreign universities shall exempt from the Preliminary Examination The Preliminary Examination for graduation in Medicine and Surgery Arts or Science of the University of St. Andrews is accepted as equivalent to the Registration Examination required by the General Medical Council (the certificate to include the required subjects) Also the Final Examination for a degree in Arts or Science and the Final Examination for the Diploma of L.L.A.

Degree of Bachelor of Medicine and Bachelor of Surgery —Candidates must have been engaged in medical study for at least five years In each of the first four years the candidate must have attended at least two courses of instruction in one or more of the subjects of study specified below each course extending over a session of not less than five months either continuous or divided into two terms or alternatively one such course along with two courses each extending over a session of not less than two and a half months During the fifth or final year the candidate shall be engaged in clinical study for at least nine months at the Infirmary of Dundee or at one or more of such public hospitals or dispensaries British or foreign as may be recognised for the purpose by the University Court The candidate must have received instruction in each of the following subjects of study including such examinations as may be prescribed in the various classes—viz Anatomy Practical Anatomy Chemistry Materia Medica, Physiology or Institutes of Medicine Practice of Medicine, Surgery Midwifery and the Diseases peculiar to Women and Infants, Pathology, Practical Chemistry Physics (including the Dynamics of Solids Liquids, and Gases and the Rudiments of Sound Heat, Light, and Electricity), Elementary Botany Elementary Zoology Practical Physiology Practical Pathology Forensic Medicine, and Public Health The candidate must have attended for at least three years the Medical and Surgical Practice either of the Infirmary of Dundee or of a General Hospital elsewhere which accommodates not fewer than 80 patients and possesses a distinct staff of physicians and surgeons and is recognised for the purpose by the University Court Additional subjects of study are Practical Pharmacy, Mental Diseases, Practical Midwifery, Operative Surgery, Vaccination, Children's Diseases Fevers, Ophthalmology, Diseases of the Ear Throat, and Nose Anæsthetics and Post-mortem Examinations

With respect to the places and institutions at which the studies of the candidate may be prosecuted the following regulations shall have effect —1 Two of the five years of medical study must be spent in the University of St Andrews. 2 The remaining three years may be spent in any University of the United Kingdom or in any Indian, Colonial, or Foreign University recognised for the purpose by the University Court, or in such medical schools or under such teachers as may be recognised for the purpose by the University Court

Women are admitted to graduation in Medicine, subject to certain provisions

Professional Examinations for the Degrees of Bachelor of Medicine and Bachelor of Surgery —Each candidate will be examined both in writing and orally and also clinically where the nature of the subject admits in the following divisions—viz., first in Botany, Zoology, Physics, and Chemistry, second in Anatomy and Physiology, third, in Materia Medica and Pathology and Forensic Medicine and Public Health, and fourth, in Surgery, Clinical and Operative Surgery Practice of Medicine and Clinical Medicine, and Midwifery and Gynæcology (Systematic and Clinical)

The fee to be paid for the degrees of Bachelor of Medicine and Bachelor of Surgery shall be 22 guineas and the proportion of this sum to be paid by a candidate at each division of the examination shall be regulated from time to time by the University Court. The fee to be paid for the degree of Doctor of Medicine shall be 15 guineas and for the degree of Master of Surgery 15 guineas

The whole medical curriculum can be taken in University College or the first two years in United College

Professors—Natural Philosophy William Peddie, D Sc, F R S E Chemistry Alexander MacKenzie, M A. Ph.D, Natural History D Arcy W Thompson M A. C B. Botany Patrick Geddes F R S E Anatomy J Yule Mackay M D LL D Physiology E W Reid B A. D Sc. M B, M R C S, F R S Pathology L R. Sutherland, M B, C M Surgery D MacEwan M.D Medicine Alexander M Stalker M A., M D Midwifery: J A. Kynoch M B F R C P & S Edin Materia Medica. C R Marshall M A. M D

United College of St Salvator and St Leonard.—Professors—Natural Philosophy A S Butler M A. Natural History W C MacIntosh, M D LL.D F R S Chemistry James C Irvine, D Sc Ph D Anatomy David Waterston. M D C M Physiology Percy T Herring, M D

For further particulars and details as to scholarships and bursaries application should be made to Professor Kynoch Dean of the Medical Faculty, University College, Dundee

UNIVERSITY COLLEGE, Dundee.—This College is one of the constituent colleges of the University of St. Andrews In the medical buildings there are spacious and well-equipped laboratories The complete medical curriculum can be taken in Dundee For classes, fees &c, see under University of St Andrews

ROYAL INFIRMARY Dundee.—The Infirmary contains 408 beds including special wards for the Diseases of Women Children Eye Ear, and Throat Skin and for Obstetric cases There is in addition an Extern Obstetric Department There were during last year 13 002 out patients and 532 home (maternity) patients The Royal Infirmary offers exceptional facilities for practical work to students Appointments. Six qualified Resident Medical Officers are appointed every six months and one non resident Obstetric Assistant

Clinical Clerks and Dressers are attached to the Physicians and Surgeons, and students are appointed as assistants in the Pathological Department There are in connexion with the clinical courses Tutorial Classes in Medicine and Surgery Instruction is also given in Practical Pharmacy and Materia Medica and in Practical Dentistry Further information can be obtained from Dr Fraser, Medical Superintendent

UNIVERSITY OF ABERDEEN

The University of Aberdeen grants four degrees in Medicine and Surgery—viz , Doctor of Medicine (M D), Master of Surgery (Ch M), Bachelor of Medicine (M B), and Bachelor of Surgery (Ch B) The two degrees of M B and Ch.B are not conferred separately, and the higher degrees of M D and Ch M are only granted to holders of the M B and Ch B degrees

Degrees of M B and Ch B—Before commencing his medical studies each student must pass a Preliminary Examination in (1) English (2) Latin, (3) Mathematics, and (4) Greek, or French, or German The curriculum for the degrees extends over a period of five years, during which attendance is required in the following subjects Botany, Zoology, Physics, Chemistry (Systematic and Practical), Anatomy (Systematic and Practical), Physiology (Systematic and Practical), Materia Medica and Therapeutics Practical Pharmacy, Pathology (Systematic and Practical), Medical Jurisprudence, Public Health Surgery, Medicine, and Midwifery

Candidates must attend for at least three years the medical and surgical practice of a recognised hospital, they must have attended courses of at least nine months in clinical medicine and clinical surgery, and have acted as clerk in the medical and dresser in the surgical wards of a hospital Attendance is required on the practice of a dispensary or the out-practice of a hospital and also on courses in Mental Diseases, Fevers, Ophthalmology, Post-mortem examinations, and other special subjects The candidate is also required to have been properly instructed in Vaccination and to have attended at least 20 Midwifery cases

The fee for the degrees of M B and Ch B amounts to £23 2s

Besides the Royal Infirmary (270 beds), students have the opportunity of attending the following institutions City Fever Hospital, Sick Children's Hospital, General Dispensary and Lying-in and Vaccine Institutions, Royal Lunatic Asylum, Ophthalmic Institution, &c

Degrees of M D and Ch.M—Candidates for either of these degrees must already hold the degrees of M B and Ch B of Aberdeen A thesis has to be presented for approval by the Medical Faculty and an examination has to be passed in Clinical Medicine or Clinical Surgery, as the case may be

A diploma in Public Health is granted by the University to graduates in Medicine of a University in the United Kingdom, after a special examination

Application for further information should be addressed to the Secretary of the Medical Faculty

Professors—Physics C Niven M A., D.Sc., F R S Physiology J A. MacWilliam, M D Medicine Ashley W Mackintosh, M D Chemistry Fred Soddy, M A., F R S Anatomy R W Reid, M D, F R C S Surgery John Marnoch, C V O, M B, C M. Materia Medica J T Cash, M D, LL D, F R S Midwifery Robert G McKerron, M D Forensic Medicine Matthew Hay, M D, LL D Botany J W H Trail, M D, F R S Pathology Theodore Shennan M D Natural History J Arthur Thomson, M A., LL D

Scholarships and Prizes—In the Faculty of Medicine of the University of Aberdeen there are the following Bursaries, Scholarships, and Prizes —Bursaries about 15 Bursaries (competition and presentation) are open each year, of £15 to £30 per annum in value, most of them being tenable for three years, certain other Bursaries are not confined to the Faculty of Medicine, but may be held by Arts Students Scholarships five Post-Graduate Scholarships value £36 to £160 per annum Prizes and Medals 13 Gold Medals and Prizes for proficiency in special departments &c

Clinical Instruction is given in the Aberdeen Royal Infirmary (270 beds) by the physicians and surgeon to the staff many of whom are in the list of professors and other lecturers and demonstrators

ABERDEEN ROYAL ASYLUM —Contains, with hospital attached to main institution and agricultural branch, about 986 beds Medical Superintendent Dr William Reid. Assistant Physicians Dr A. W H Cheyne, Mr Arthur Y Milne, and Mr Arthur P Spark. Clerk Treasurer, and Factor Mr A. Scott Finnie, 343, Union street, Aberdeen Clinical instruction is given to students during three months in summer

SCOTTISH MEDICAL CORPORATIONS GRANTING DIPLOMAS

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH ROYAL COLLEGE OF SURGEONS OF EDINBURGH, ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

These Colleges have made arrangements by which, after one series of examinations, held in Edinburgh or Glasgow or both, the student may obtain the diplomas of the three Bodies

The three Bodies grant their Single Licences only to candidates who already possess legal qualifications in Medicine or Surgery Copies of the Regulations for the Single Licence of any of the Bodies may be had on application to the respective secretaries

Professional Education—The candidate must produce certificates or other satisfactory evidence of having attended the following separate and distinct courses of instruction Physics, three months, Elementary Biology three months, Chemistry, six months, Practical or Analytical Chemistry, three months, Anatomy, during at least six months, Practical Anatomy, twelve months, Physiology with Histology, six months, Materia Medica, three months, Pathology (including Practical Pathology), nine months, Practice of Medicine, six months, Clinical Medicine, nine months, Principles and Practice of Surgery, six months Clinical Surgery, nine months, Midwifery, three months, Gynæcology one course of not less than 13 meetings, Diseases of Children, one course of not less than 13 meetings Medical Jurisprudence and Public Health, three months The certified attendance on lectures, demonstrations, and practical work must not be less than three-fourths of the total number of roll calls Every student undergoes a course of Practical Midwifery, but before attending at labours he is required to attend a course of lectures on Surgery and Midwifery and to hold the offices of Clinical Medical Clerk and Surgical Dresser He must also attend for two and a half months instruction in Practical Pharmacy, the certificate to be signed by the teacher, who must be a member of the Pharmaceutical Society of Great Britain, or the superintendent of the laboratory of a public hospital or dispensary, or a registered practitioner who dispenses medicines to his patients, or a teacher of a class of Practical Pharmacy

The student must attend for 27 months the Medical and Surgical practice of a public general hospital containing on an average at least 80 patients available for clinical instruction and possessing distinct staffs of physicians and of surgeons He must act as Surgical Dresser and Medical Clinical Clerk for not less than three months in the wards in each case, and receive practical instruction in administration of anæsthetics He must attend for six months the practice of a public dispensary especially recognised by any of the above authorities, or the out patient practice of a recognised general hospital or act for six months as pupil to a registered practitioner who either holds such a public appointment, or has such opportunities of imparting practical knowledge as shall be satisfactory to the coöperating authorities, this attendance should be made after the student has passed the First and Second examinations

Candidates are also required to attend the following courses Diseases and Injuries of the Eye, three months, Insanity, three months, Infectious Diseases three months, Gynæcology, three months, Diseases of Children three months

The curriculum lasts for five years, the fifth year being devoted to clinical work.

There are four professional examinations —

First Examination includes Physics, Chemistry, and Elementary Biology

Second Examination includes Anatomy and Physiology d Histology, and candidates may be admitted to this amination at the end of the second year of medical study *Third Examination* includes Pathology and Materia Medica th Pharmacology

Final Examination —The Final examination shall not be ken earlier than the end of the fifth year of study and shall ibrace the following subjects —Medicine, including Thera utics, Medical Anatomy, and Clinical Medicine, Surgery, cluding Surgical Anatomy, Clinical Surgery, and Diseases d Injuries of the Eye, Midwifery and Diseases of omen, and, if not passed previously, Medical Jurisudence and Public Health, but it is optional to candi ites who have passed the Third Examination to be lmitted to the subject of Medical Jurisprudence and iblic Health on lodging certificates of having attended e necessary course in that subject at any time, but e subjects of Medicine, Surgery, and Midwifery shall taken together at any time after the end of the fifth Inter Session, provided that a period of 24 months has apsed since passing the Second Examination All candi ates shall be subjected, in addition to the written and al examinations, to clinical examinations in Medicine and urgery which shall include the Examination of Patients, hysical Diagnosis, the Clinical use of the Microscope, xamination of the Urine and Urinary Deposits, Surgical ppliances Bandages Surface Markings &c The fees ayable for the Final Examination shall be—for the whole xamination £15 for re-entry after rejection, £5 and for e subjects of Medical Jurisprudence and Public Health hen taken separately, £5, with £3 for re entry in that ibject.

There are six periods of examination annually, four in dinburgh and two in Glasgow The Registrar in Edinurgh is Mr D L. Eadie 50, George square and the egistrar in Glasgow, Mr Walter Hurst, 242 St Vincentreet, to whom fees and certificates must be sent for he respective examinations, and from whom further par iculars concerning fees can be obtained

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH THE MEMBERSHIP AND FELLOWSHIP

In addition to the diplomas granted by the Scottish Con oint Board the Royal College of Physicians grants its Single Licence to candidates already possessing legal quali ications for professional practice

The Royal College of Physicians of Edinburgh grants a *Membership* and a *Fellowship*

Membership —A candidate who must be a Licentiate of a British or Irish College of Physicians, or a graduate of a British or Irish University and 24 years of age is examined in medicine therapeutics and in any branch of the departments of medicine specially professed, such as general pathology, psychology, public health obstetrics gynæcology, diseases of children, tropical medicine or medical jurisprudence. The fee for the Membership is £36 15*s* 15 guineas of which will be returned to any successful candidate who was already a Licentiate of the College at the time of qualifying for the Membership

Fellowship —The Fellows are selected from the ranks of the *Members* They must be 25 years of age The fee is £64 18*s*

ROYAL COLLEGE OF SURGEONS OF EDINBURGH THE FELLOWSHIP

The Royal College of Surgeons of Edinburgh also admits to the examination for its Single Licence any candidates who hold a Diploma in Medicine of any British Indian, or Colonial university or of any British or Colonial College of Physicians or of the Society of Apothecaries of London or Apothecaries Hall Dublin granted under the provisions of the Medical Act 1886 whose preliminary examination and course of professional study is proved to be sufficient to fulfil the requirements of the College, or to those who have passed a full examination for any of the above Female practitioners are now admitted to the Licence of the College but not to the Fellowship and the regulations for the Licence apply to practitioners of either sex.

The Royal College of Surgeons of Edinburgh grants a diploma of Fellowship after examination to the holders of the surgical degrees of diplomas of such British examining bodies, as well as of the holders of such surgical degrees of the Universities of Canada, Australia, New Zealand, and the Indian Empire as are recognised by the College

The Fellowship —Candidates for the examination must be 25 years of age and must have been engaged in practice for at least two years The examination is of a practical nature, partly written and partly *viva voce*, and must include surgery and surgical anatomy, operative surgery, and clinical practice One optional subject must also be taken, the range of these specialisms covering nearly every branch of medicine The fee to be paid on entering for examination for Fellowship is £45, £10 of which is remitted to those who already hold the Licentiateship of the College Candidates rejected at the examination obtain repayment of fee less £10 retained for examination expenses One month's notice of intention to present himself for examination must be given by the candidate to Mr D L Eadie, 50, George-square, Edinburgh, clerk to the College, together with credentials signed by two Fellows of the College one of whom must be a resident in Edinburgh, unless a special application be made to the President and the Council of the College

THE ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

Like the preceding corporations, the Royal Faculty of Physicians and Surgeons of Glasgow grants a Fellowship and a Licence to be held as separate qualifications

Fellowship —The Fellowship of the Faculty is granted after examination in medicine or surgery, together with an optional subject, which may be anatomy or physiology or be selected from any special branch of medicine or surgery, or in one subject to medical practitioners who serve in the present war 14 days' notice must be given by the candidate of his intention to present himself to Mr Walter Hurst, the Faculty Hall 242, St Vincent-street, Glasgow The fee for the Fellowship is £30, £10 of which sum are returned to any successful candidate who already holds the Licence of the Faculty An additional sum of £30 is required in the case of candidates resident within seven miles of Glasgow In certain circumstances Fellows may be elected as a mark of distinction

Licence —The Licence of the Royal Faculty is granted as a separate qualification to qualified practitioners in Medicine after examination in surgery, including surgical anatomy and clinical surgery The fee is 15 guineas

SCOTTISH PROVINCIAL ANCILLARY SCHOOLS AND HOSPITALS

The hospitals which are recognised by the Scottish Conjoint Board, as places where professional study for their diplomas can be pursued are all those institutions which feed the medical faculties of the universities In addition the Scottish Boards recognise all the places which are recognised by the English Conjoint Board (see p 385) and the Irish Conjoint Board (see p 402)

III—IRELAND

THE UNIVERSITIES

UNIVERSITY OF DUBLIN, TRINITY COLLEGE (SCHOOL OF PHYSIC)

Matriculation.—All students intending to join the School of Physic must pass a matriculation examination University students take the Entrance of Trinity College and a Junior Freshman Term or a special Medical Preliminary, Extern Students, any examination recognised by the General Medical Council The winter courses begin on Oct 2nd.

Degrees in Medicine (M B) Surgery (B Ch), and Midwifery (B A O).—Candidates for these degrees must be of B A. standing and must be for at least five academic years on the books of the Medical School, reckoned from the date of matriculation The Arts course may be taken concurrently with the Medical course, and the B A degree need not be taken before the final medical examinations, but the Medical degrees are not conferred without the Arts degree The following courses must be attended

(1) Lectures—Systematic, Descriptive and Applied Anatomy, Chemistry and Practical Chemistry Surgery and Operative Surgery, Histology, Botany, Zoology, Physics and Practical Physics, Physiology and Practical Physiology, Practice of Medicine, Midwifery, Pathology, Materia Medica and Therapeutics, Medical Jurisprudence and Hygiene, (2) three courses of nine months' attendance on the Clinical Lectures of Sir Patrick Dun s or other recognised Hospital, (3) Practical Vaccination, one month's instruction, (4) Mental Disease, three months, (5) Practical Midwifery with Clinical Lectures including not less than 30 cases, six months, (6) Ophthalmic Surgery, three months Three groups of examinations have to be passed Preliminary Scientific Examination, including Physics and Chemistry, Botany and Zoology The Intermediate Medical Part I including Anatomy and Physiology The Intermediate Medical, Part II, including Applied Anatomy and Applied Physiology, and the Final Examination, which is divided into Part I, Materia Medica, Hygiene and Jurisprudence, and Pathology, and Part II, Medicine, including Clinical Surgery, Midwifery Gynæcology, Mental Diseases, Operations, and Clinical Ophthalmology Part I may be passed in the fourth year and Part II completed at the end of the fifth year

Doctor in Medicine—A Doctor in Medicine must have passed all the qualifying examinations and must be a B A. of three years' standing He must also read a thesis before the Regius Professor of Physic

Master in Surgery—A Master in Surgery must be a Bachelor in Surgery of the University of Dublin of not less than three years' standing, and must produce satisfactory evidence of having been engaged for not less than two years from the date of his registration in the study, or study and practice, of his profession He must then pass a special examination.

Master in Obstetric Science—A Master in Obstetric Science must be fully qualified and produce a certificate of having attended a summer course in Obstetric Medicine and Surgery He is then required to pass a special examination

University Diplomas—Candidates for the diplomas in Medicine, Surgery, or Obstetric Science must be matriculated in Medicine and must have completed two years in Arts and five years in Medical Studies The Course and Examination necessary for the diplomas are the same as for the degrees A diploma in Medicine, Surgery, and Midwifery is a registrable qualification conferred upon candidates who have completed a full five years course in Medicine and two years in Arts A diplomate, on completing his course in Arts and proceeding to the degree of B A, may become a Bachelor by paying the degree fees

Bachelor in Dental Science and Master in Dental Science—The regulations under which these degrees are awarded can be obtained by application to the Registrar of the School of Physic

Professors and Lecturers.—Regius Professor of Physic James Little M D LL D Regius Professor of Surgery Edward H Taylor, M D, F R C S I. University Professor of Anatomy and Chirurgery Andrew Francis Dixon, M B, Sc D University Professor of Chemistry Sydney Young, Sc D F R S University Professor of Botany Henry H Dixon, Sc D, F R S Erasmus Smith s Professor of Natural Philosophy William E Thrift, M A., F T C D Professor of Surgery Thomas E Gordon M B, F R C S I Professor of Zoology and Comparative Anatomy H W Mackintosh M A King s Professor of Practice of Medicine James Craig, M D King s Professor of Materia Medica and Pharmacy Walter G Smith M D King s Professor of Institutes of Medicine W H Thompson, M D, Sc D King s Professor of Midwifery T Henry Wilson F R C P I Honorary Professor of Laryngology and Otology Sir Robert H. Woods M D, F R C S I Lecturer in Medical Jurisprudence and Hygiene Henry T Bewley M D Lecturer in Pathology Alexander C O'Sullivan, M D F T C D Lecturer in Dental Surgery and Pathology A. W W Baker, M D M Dent Sc Lecturer in Dental Mechanics Joseph Cockburn L.D S Lecturer in Orthodontia E Sheldon Friel M Dent Sc Lecturer in Anæsthetics T Percy C Kirkpatrick, M D

Clinical instruction—The hospital facilities for clinical instruction available in Dublin will be described below

THE NATIONAL UNIVERSITY OF IRELAND

Matriculation.—All students intending to proceed to the medical degree of the University of Ireland must pass a matriculation examination, the examination taking place in September in Dublin and at certain local centres. All students must pass in five subjects All students must pass in the following subjects[1] except students not born in Ireland, and other students whose home residence shall have been outside Ireland during the three years immediately preceding their matriculation, but all such students will be expected to attend a course of instruction in Irish Literature and History prior to obtaining any degree in the University—1. Irish 2. Latin or Greek 3 French, German, Italian Spanish, Welsh, Dutch or any other language approved by the Senate. 4 English 5 Mathematics or Natural Philosophy[2] 6 English, Latin, Greek, French, German, Welsh, Spanish, Italian or any other modern language approved by the Senate, History and Geography, Mathematics Natural Philosophy, or Physics[3] as an alternative, Chemistry Botany, and for women candidates only, Physiology, and Hygiene Candidates who under the regulations are exempted from the necessity of presenting Irish as one of their subjects may present as their fifth subject either a second language or a second science subject Students entering for degrees in Medicine or Dentistry if already registered by the General Medical Council, may be accepted as matriculated students of the Faculty of Medicine on passing the matriculation examination in any faculty of the University

The medical degrees granted are—

M B, B Ch, and B A O, and M D M Ch, and M A O—Printed forms of application for admission to any medical examination may be had from "The Registrar, The National University of Ireland Dublin"

The Constituent Colleges of the National University of Ireland at which the full curriculum for medical degrees can be obtained are University College Dublin, University College, Cork, and University College, Galway

UNIVERSITY COLLEGE, DUBLIN—The University and the College were created by the Irish University Act, 1908, and by Charters issued in December, 1908 Former students of the Cecilia street School of Medicine who graduated in the Royal University may become graduate members of the new College The constitution of the College, like that of the Constituent Colleges of Cork and Galway, provides for a governing body, an academic council consisting of professors and coöpted lecturers, a body of graduate members and a body of student members matriculated in the University The first professors and lecturers were appointed by the Dublin Commissioners Irish Universities Act 1908

Matriculation—Almost all the students of the College are matriculated students of the National University of Ireland

University Examinations in Medicine—The First Examination includes Physics, Chemistry Botany, and Zoology The examination may be taken in two parts Part I Physics and Chemistry, Part II, Botany and Zoology

[1] The Senate has directed that candidates who presented themselves for the Matriculation Examination and who passed in certain subjects in 1912 or any previous year may when presenting themselves in 1917 in the remaining subjects necessary to complete the examination select such completing subjects in accordance with the regulations as to groups of subjects which were in force in 1912. Such candidates will not be obliged to present themselves for examination in Irish. Such candidates however while they may select the completing subjects as above must present themselves for examination in these subjects on the courses prescribed in each by the Regulations in 1917 Candidates who presented themselves for the Matriculation Examination and who passed in certain subjects in 1913 when presenting themselves in 1917 in the remaining subjects necessary to complete the examination must select such completing subjects in accordance with the regulations as to groups of subjects which were in force in 1913 The courses in such completing subjects will be the courses prescribed in those subjects respectively for 1917

[2] Certificates of having passed in Chemistry or Physics at the Examinations of the Intermediate Education Board will be accepted only if the Honours Examination of the third or fourth years course in these respective subjects has been passed (A pass on the Honours Course will be accepted) Students desiring to present Pass Chemistry or Pass Physics must pass an examination in these subjects at the Matriculation Examination of the University A pass in Chemistry or Physics at the Examination of the Intermediate Education Board will not be accepted as exempting from Mathematics at the Matriculation Examination of the University

[3] A candidate who takes Natural Philosophy in Group 5 cannot take Physics in Group 6

Honours may be obtained only when both parts are taken as one examination The Second Examination includes Anatomy and Physiology Both must be passed at the same time The Third Examination includes Pathology, Medical Jurisprudence and Hygiene, and Materia Medica

Degrees of M B , B Ch , and B A O —The Examination in Medicine, Midwifery Surgery, and Ophthalmology includes both the theoretical and the clinical branches No student can enter for the M B , B Ch , or B A O until the end of the fifth year when the curriculum has been completed The course of study is as follows —First year —Winter Anatomy and Practical Anatomy (required for the Second Examination) [4] Chemistry, Practical Chemistry, and Experimental Physics (with Laboratory Course) Summer Zoology, Practical Zoology, Botany, and Practical Botany Second year —Winter Anatomy Practical Anatomy, Physiology, and Practical Physiology (physical and chemical) Summer Anatomy, Practical Anatomy, Physiology and Practical Histology Third year —Winter Pathology Surgery or Medicine, Hygiene, Medical Jurisprudence and Practical Pharmacy Summer Materia Medica and Therapeutics, and Practical Pathology Candidates are also required to attend a General Hospital for nine months (winter and summer) Fourth year, or fourth and fifth years —Winter Medicine or Surgery (the subject to be that not taken in the third year), and Midwifery and Gynæcology Summer Operative Surgery Applied Anatomy, and Ophthalmology and Otology Candidates are also required to attend a General Hospital for nine months (winter and summer) and to take instruction in Vaccination, and three months Fever Hospital Fifth year —If the Academic (Collegiate) Courses are taken as above, the Courses of the fifth year will be the following Hospital Attendance General Hospital, nine months , Clinical Ophthalmology and Otology three months, Practical Midwifery and Gynæcology, six months, Mental Diseases, to be attended at a Lunatic Asylum three months (Note — Practical Midwifery and Gynæcology may be taken in the fourth year after the Systematic Course of Midwifery but it must not be taken concurrently with the period of attendance at Fever Hospital) The degree of M D may be obtained either by examination or on published work.

Dean of the Faculty (of the College) Professor McLoughlin

Professors —Anatomy Edward Patrick McLoughlin, B A M B , B Ch B A.O Physiology Bertram James Collingwood B A , M D Zoology George Sigerson M D Chemistry Hugh Ryan M A D Sc Physics John A McClelland M A D Sc F R S Pathology and Bacteriology Edmund J McWeeney M A. M D , D P H F R C P Irel Medicine Joseph F O Carroll M D F R C P Irel Surgery John S McArdle, M Ch F R C S Irel Midwifery and Gynæcology Alfred J Smith M B F R C S Irel. Materia Medica and Therapeutics Martin Dempsey, B A. M D F R C P Irel Hygiene and Medical Jurisprudence J N Meenan M B , B Ch , B A O , D P H Botany J Bayley Butler, M A. M B B Ch., B A.O and Louis Werner, M B F R C S Irel Dental Surgery E. Sheridan F R C S Irel L D S Dental Mechanics J L Potter L D S

Assistants and Demonstrators —Anatomy Dr H Barniville Dr C J MacAuley Mr H S Meade F R.C S I and Dr W Doolin Chemistry Mr G Ebrill B A and Mr T Dillon D Sc Medicine Dr J F O Carroll Pathology and Bacteriology Dr T T O Farrell and Dr W D O Kelly Pharmacy Dr M Hayes Physics Mr J Nolan M Sc. and John J Dowling M A Surgery Dr A Blayney Physiology Dr James M O Connor

Fees —The fees for Courses are similar to those of the other Dublin Medical Schools

Information concerning these and the numerous scholarships and exhibitions of the College can be obtained from the Dean

UNIVERSITY COLLEGE CORK THE SCHOOL OF MEDICINE. —The building is provided with a very large, well ventilated dissecting room supplied with electric light with physiological toxicological pathological and pharmaceutical laboratories materia medica anatomical and pathological museums as well as a collection of surgical and obstetrical instruments and appliances There are well appointed physical, chemical, and biological laboratories, and a large natural history museum in the adjoining building, and part of the College ground is laid out as a botanical garden The plant houses are well filled with plants and are open to the students in the class of Botany The Library contains over 50,000 volumes and is open daily during term time to students The Medical Museum occupies a large room erected at the northern end of the medical buildings There are Students Clubs for men and women students of the College and various athletic clubs the last of these holding a public meeting once in each year in the Mardyke grounds

Dean of the Faculty —Professor A E Moore, M B B Ch., B A O

Professors —Anatomy D P Fitzgerald, M B B Ch. Botany H A Cummins M D., C M G (Major, R A M C) Chemistry A E. Dixon, M D Experimental Physics W Bergin M.A Materia Medica John Dundon M B B Ch , B A O , F R C S Eng , F R C S Irel Medicine W Ashley Cummins, M D , M Ch Obstetrics and Gynæcology H Corby, B A M D , M Ch Pathology A E Moore, M B , B Ch B A O Physiology D T Barry, M D , F R C S Surgery C Yelverton Pearson, M D , M Ch , F R C S Zoology Marcus Hartog, M A D Sc F L S F R.H S Hygiene Mr D D Donovan Medical Jurisprudence Dr P T O Sullivan Ophthalmology Dr A W Sandford.

Lecturer —Mental Diseases Dr J J Fitzgerald

Demonstrators —Anatomy Dr W F O'Connor Chemistry Mr J Taylor, M Sc., and Dr J L McKee, Ph D Experimental Physics Mr P Belas B A Pathology Dr W Magner Physiology Mr J M O Donovan B Sc Surgery Dr C B Pearson Zoology Miss B E Duke B Sc

All students who have been admitted as matriculated students are required to attend before the President and sign the Roll of Matriculated Students Students who may be candidates for degrees in the National University of Ireland must have passed the Matriculation Examination of that University or other recognised examination, and medical students must have passed a preliminary examination recognised by the General Medical Council Candidates will be examined in Irish Greek, or French or German, Latin History Geography English and Mathematics

Admission of Medical Students —Students in the Faculty of Medicine who have passed the First Professional Examination of the Conjoint Examinations of the Royal College of Physicians and the Royal College of Surgeons in Ireland, or of the Royal College of Physicians and Royal College of Surgeons of Edinburgh and the Faculty of Physicians and Surgeons of Glasgow, or of the Royal College of Physicians, London and Royal College of Surgeons England, may be admitted to the rank of second year students on making application to the Council and submitting a certificate of having passed the examination Similarly students who have passed the Second Professional Examination of the same Colleges may be admitted to the rank of third year students, and those who have passed the Third Professional Examination of the Dublin Colleges, or of the Edinburgh Colleges and Glasgow Faculties, may be admitted to the rank of fourth year students

Residence of Students —There is no accommodation for the residence of students within the College, but students not living at home, or with relatives or friends, sanctioned by their parents or guardians are required to live in a hostel or in recognised lodgings a list of which can be obtained from the Secretary All students are required to register their addresses each session in the book kept for that purpose in the hall porter s office, and to notify immediately to the Registrar any change of address during the session The Honan Hostel adjoining the College is equipped by private endowment A number of sets of rooms together with recreation and common rooms, are provided for lay students who may desire to live there For full particulars apply to the Warden The Ursuline Convent Blackrock, has a house of residence, quite separate from their Secondary School for Catholic women students

Clinical Instruction —Students may attend the South Infirmary Cork North Charitable Infirmary, the Mercy Hospital, the Cork District Lunatic Asylum, the Victoria Hospital for Diseases of Women and Children the County Lying in Hospital the Cork Maternity the Cork Fever Hospital the Cork District Hospital, and the Cork Ear, Eye, and Throat Hospital

[4] These courses are not required for the First Examination in Medicine but must be taken in the first year to permit a candidate to qualify for admission to the Second Examination in Medicine at the end of the second year

Complete information with regard to class fees, scholarships, and prizes can be obtained from the Dean of the College

South Infirmary and County of Cork General Hospital (100 beds)—Staff Consulting Physician Dr P J Cremen Physicians Dr P T O'Sullivan and Dr Norman I Townsend Surgeons Dr H R. Townsend, Dr T Gelston Atkins, and Dr Henry Corby Ophthalmic Surgeon Dr A W Sandford Physicians for Extern Patients Dr E W Allsom and Dr E V Cantillon Surgeon for Extern Patients Dr R P Crosbie Anæsthetist Dr M V Shanahan Radiologist Dr G Hegarty Pathologist Dr A. E Moore. House Surgeon Dr W P Lebone House Physician Dr J C Saunders Dentist Mr T C Butterfield. Honorary Secretary Dr N I Townsend. Clinical instruction is given daily in the wards Special instruction on Ophthalmic Surgery and Diseases of Women and Children will be given in the special wards for such cases Fee for perpetual ticket, £22 1*s*, for nine months, £9 9*s*, for six months, £6 6*s*, for three months, £3 3*s* Two resident pupils will be appointed by competitive examination Clinical prizes will be given by the staff at the close of the session

Cork North Charitable Infirmary and County and City of Cork General Hospital (112 beds)—Physicians Mr D D Donovan and Dr Edward Magner Surgeons Mr C Y Pearson, Mr John Dundon, Mr N H Hobart, and Mr D J O'Mahony Assistant Physician Mr R. B Dalton Assistant Surgeon Mr Richard P Byrne Second Assistant Surgeon Mr D F Hegarty Resident Surgeon John Higgins Resident Physician (Vacant) Pathologist Dr W Magner Radiologist Dr C B Pearson Anæsthetist Mr D M Donovan Surgeon Dentist Mr William Pericho Dispensing Chemist Mr M Tucker Honorary Secretary Mr R B Dalton. Clinical instruction is given daily in the wards by the physicians and surgeons Special instruction is given to Junior Students on two days weekly Fee for perpetual ticket, £22 1*s*, for 12 or nine months, £9 9*s*, for six months, £5 5*s*, and for three months, £3 3*s* Two resident pupils are appointed quarterly by the medical staff All resident pupils are required to be registered pupils of the Hospital There is a special department for treatment of the eye, ear, throat, and nose under the charge of Mr J Bowring Horgan, and a Special Dental Department (Secretary, I Scher, L D S)

Mercy Hospital *—Staff Consulting Physician Dr P J Cremen. Consulting Surgeon Dr J Cotter Consulting Ophthalmic Surgeon Dr J J McMahon Physicians Dr C Cantillon and Dr D J O Connor Surgeons Mr J Giusani and Mr J Dundon. Ophthalmic Surgeon Mr J M Browne Surgeon Dentist Mr H O'Keeffe. Resident Surgeon Dr O Brien Anæsthetist and Radiographer Mr Walter Rahilly Pathologist Dr M A Shinkwin, two resident students This hospital contains 85 beds for medical and surgical cases There is also a daily extern for medical and surgical cases, as well as for diseases of the eye, ear, and throat. Extern medical attendances, 2791, surgical attendances, 861, ophthalmic attendances and dental, 4541, intern patients, 1128 Major operations 254, minor operations, 567 Honorary Secretary to the Staff Dr James Browne

Cork District Lunatic Asylum—Psychological Medicine A course of Clinical Lectures on Mental Disease and Allied Neuroses will be delivered in the Cork District Lunatic Asylum on Mondays and Thursdays commencing the first Thursday in May, by the Resident Medical Superintendent. All students wishing to enter for the course are expected to attend at the Asylum at 2 30 P M on that day All information may be had at the Asylum from Dr James J FitzGerald resident medical superintendent

Victoria Hospital (Cork)—Honorary Staff Dr Ashley Cummins, Dr C Yelverton Pearson, Dr P Lee, Dr Hobart, and Dr C B Pearson. Lady Superintendent Mrs George Armstrong There are 75 beds Clinical instruction on Diseases Peculiar to Children is given. The extern department is open daily at 9 30

County and City of Cork Lying in Hospital (Erinville, Western road, founded 1798)—Staff Honorary Consulting Physicians Dr W E Ashley Cummins and Dr D D Donovan Honorary Obstetric Surgeon Mr C Yelverton Pearson Physicians Dr N H Hobart, Dr Lucy E Smith, Dr Daniel J O Connor, and Dr P J O'Brien Assistant Physicians Dr E V Cantillon and Dr C B Pearson This hospital contains 20 beds. Fee for six months' attendance, including clinical lectures, £3 3*s* For further particulars apply to N H Hobart, honorary secretary to staff.

Cork Maternity (Batchelor's Quay)—Staff Consulting Obstetric Physicians Dr T Gelston Atkins and Dr Henry Corby Obstetric Physicians Dr John Booth, Dr Michael Cagney, and Dr Walter Rahilly Three resident pupils are taken into the Maternity Poor women are attended at their own homes Clinical lectures are delivered during the session There is an extern department for the treatment of women's and children's diseases Fee for attendance at clinical lectures and certificate, £3 3*s* Honorary secretary to staff, Dr Henry Corby

Cork Fever Hospital—Staff Ordinary Physicians Dr D J Flynn and Dr T Callaghan Extraordinary Physician Dr D Murphy Resident Medical Officer and Registrar Dr A G Sutton. Upwards of 500 cases of various forms of fever and zymotic disease are treated yearly in this hospital The Resident Medical Officer gives instruction in Practical Pharmacy, a certificate of which is necessary for the National University and Colleges of Physicians and Surgeons of Edinburgh

Cork District Hospital (Douglas-road, 1200 beds)—Staff Dr W E Ashley Cummins (Professor of Medicine, University College, Cork, Examiner in Medicine, National University of Ireland), Dr J Giusani, Mr D Morrissy, and Mr James T O'Connor Resident Medical Officers Dr O Mullane and Dr M Sexton. This hospital includes special buildings for fever and other infectious diseases (100 beds), for children's diseases (100 beds), and a Lock hospital, the only one in the South of Ireland (80 beds) It affords an extensive field for the study of all classes of diseases, acute and chronic, including special departments for gynæcology and diseases of the skin and nervous system. The physicians and surgeons visit the hospitals every morning at 10 o clock. Lectures and clinical instruction are given daily in the wards by the physicians and surgeons. Further particulars may be obtained from Dr W E. Ashley Cummins 17 St. Patrick's place, honorary secretary, medical staff

Cork Eye, Ear, and Throat Hospital (Western road).—Staff Visiting Surgeon Dr Arthur W Sandford Assistant Surgeons Dr T H D Townsend and Dr J M Browne. Consulting Physician Dr W E Ashley Cummins. Consulting Surgeon Dr H N Hobart House Surgeon Dr B J O Connor This hospital is open to students attending the University College and others Certificates of attendance for three or six months can be obtained. The hospital contains 35 beds Over 4000 cases are treated during the year Clinical instruction is given to students attending the hospital with demonstrations on the use of special instruments A course of Lectures on Ophthalmic Surgery is delivered during the session For further information apply to Dr Arthur Sandford, 13, St. Patrick's-place, Cork.

UNIVERSITY COLLEGE, GALWAY SCHOOL OF MEDICINE.—The College contains well lighted and ventilated dissecting room and anatomical lecture theatre, physiological, pathological, pharmaceutical, chemical, and physical laboratories, anatomical, pathological, gynæcological, and materia medica museums, as well as a large natural history and geological museum and an extensive library in which students can read and from which they can borrow books There are 14 Entrance Scholarships, value £30 and £25 each, for which Medical Students compete with other Students on the Entrance Course In the Second, Third, and Fourth Years two Scholarships in each year, value £25 each are reserved for Medical Students in the Professorial Course There are extensive grounds, a portion of which is occupied by a Botanic Garden and a portion is at the disposal of the College Athletic Union There are several student societies in the College, including a Biological Society There are abundant facilities for research and Post-graduate work in the Chemistry, Physiology, and Pathology departments There are ample facilities for female students Further information can be obtained from the Registrar of the College

Professors—Natural Philosophy A. Anderson M A., LL D Chemistry A. Senier, Ph D Natural History

* No returns.

J Mangan, M A. Anatomy and Physiology J P Pye, M D, D Sc Medicine R. B Mahon, M D Surgery W W Brereton, L.R.C S I Materia Medica N W Colahan, M D Midwifery R. J Kinkead, M D Pathology T Walsh, B A, M D, D P H

Clinical Instruction is given in the Galway Hospital and in the Galway Union and Fever Hospitals, containing on an average 200 patients

Galway County Hospital (60 beds) —Founded by Act of Parliament Physicians Professor R J Kinkead and Professor R B Mahon. Surgeons Professor J P Pye, Professor N W Colahan, and Professor W W Brereton Gynæcologist Professor Kinkead Pathologist Professor Walsh Assistant Surgeon Dr M J O'Malley Clerk Mr S J Leonard

Galway Union and Fever Hospitals (150 beds) —A new Fever Hospital has just been built A prospectus giving details of the courses of study and examination for degrees and of the subjects for public and private foundation scholarships may be had on application

QUEEN'S UNIVERSITY OF BELFAST

There are six degrees in the Faculty of Medicine of the University—viz, Bachelor of Medicine (M B), Bachelor of Surgery (B Ch.), Bachelor of Obstetrics (B A.O), Doctor of Medicine (M D), Master of Surgery (M Ch.), and Master of Obstetrics (M A.O) The University also grants a Diploma in Public Health, particulars of which will be found in the University Calendar The degrees of M B, B Ch and B A.O are the primary degrees in the Faculty of Medicine, and are conferred at the same time and after the same course of study No student is admitted to the final examination for these degrees until he has shown (1) that he is a matriculated student of the University, (2) that he has completed the prescribed course of study in the Faculty of Medicine extending over a period of not less than five academic years from the date of his registration as a student of Medicine by the General Council of Medical Education and Registration of the United Kingdom, (3) that he has passed the several examinations prescribed, (4) that he has attended in the University during three academic years at least the courses of study prescribed for such degrees (the Senate may accept, for not more than two academic years of the required five, courses of study pursued in any other University or School of Medicine approved by the Senate), and (5) that he has attained the age of 21 years. Every candidate for admission as a matriculated student of the University shall pass such Matriculation Examination or fulfil such other test of fitness as may be prescribed by the Senate which may prescribe the conditions under which students who have passed the Matriculation or Entrance Examination of any other University or College approved for that purpose (or who have fulfilled such other test of fitness as may be prescribed) may be exempted from passing the Matriculation Examination of the University For information as to Scholarships and Prizes inquiry should be made of the Dean of the Faculty of Medicine of the University

Primary Degrees of M B, B Ch, B A.O —All candidates for these degrees must satisfy the examiners in the subjects of four examinations known as the First, Second, Third, and Fourth Medical Examinations respectively

The First Medical Examination —The subjects of this examination are Chemistry (Inorganic and Organic), Experimental and Practical Physics, Botany and Zoology, and Practical Botany and Zoology The examination will be divided into two parts which may be taken separately I Chemistry Practical Chemistry and Experimental Physics (including laboratory work), II Botany and Zoology (including laboratory work)

The Second Medical Examination —The subjects are Anatomy and Practical Anatomy, Physiology and Practical Physiology Candidates who have previously passed the First Medical Examination may present themselves for this examination at the close of their second year

The Third Medical Examination —The subjects are (1) Pathology and Practical Pathology, (2) Materia Medica Pharmacology and Therapeutics, (3) Medical Jurisprudence, (4) Hygiene Candidates who have previously passed the Second Medical Examination may present themselves for this examination at the close of the third year Attendance on a course in any subject of the Third Medical Examination shall not entitle a student to a certificate of attendance unless he has previously passed in all the subjects of the First Medical Examination

The Fourth Medical Examination —The subjects are (1) Medicine, (2) Surgery, (3) Midwifery, (4) Ophthalmology and Otology This examination may be taken in two parts I, Systematic, II, Clinical, Practical and Oral Candidates who have previously passed the Third Examination may present themselves for Part I of the Fourth Examination at the close of the fourth year, provided that they have fulfilled the necessary requirements as to attendance, &c., on the courses of instruction in the subjects of examination Candidates who have passed Part I of this examination may present themselves for Part II at the close of the fifth year, provided that they have fulfilled the necessary requirements as to hospital attendance on the various clinical courses in the subjects of examination. Parts I. and II may be taken together at the close of the fifth year Attendance on a course in any subject of the Fourth Medical Examination shall not entitle a student to a certificate of attendance unless he has previously passed in all the subjects of the Second Medical Examination

Degrees of M D, M Ch, and M A O —These degrees are not conferred until the expiration of at least three academic years, or in the case of graduates of the University in Arts or Science of at least two academic years, after admission to the primary degrees in the Faculty of Medicine. Every candidate must show that in the interval he has pursued such courses of study, or been engaged in such practical work as may be prescribed These degrees may be conferred by the Senate either (*a*) after an examination which includes written, oral clinical, and practical examinations, or (*b*) on the submission of a thesis or other evidence of original study or research to be approved by the Faculty of Medicine after an oral or other examination of the candidate on the subject thereof

The Medical School —The Donald Currie Chemical Buildings contain a lecture theatre, a preparation room, a chemical museum, a large class room for elementary practical chemistry, laboratories for qualitative and quantitative analysis, rooms for water and gas analysis, dark room for photographic purposes and balance room, provided with all modern appliances The Anatomical Department contains a large and well lighted dissecting room, a lecture room, a professor's and demonstrator's room, a bone room, and a laboratory for microscopic and photographic work. The Medical Museum is in the same building The Jaffé Laboratories for Physiology comprise a lecture theatre, laboratories for practical work in chemical physiology, histology, and experimental physiology, and in addition small private research rooms, including balance, galvanometer, and centrifuge rooms The Musgrave Pathological Laboratory —In this department opportunity is afforded for research in pathology and bacteriology The department is in touch with most of the hospitals in Belfast, and there is an ample supply of material for investigation by graduates in morbid histology, clinical pathology, and the bacteriology of infectious diseases A course in pathology or bacteriology is given to graduates and members of this class have an opportunity of seeing the methods employed in the various investigations carried out in the department for the Public Health Committee of the corporation in connexion with water supply, sewage disposal meat- and milk supply, the diagnosis of cases of infectious diseases, &c. The certificate issued to members of the class in bacteriology qualifies for the D P H degree The Pharmaceutical Laboratory is fitted and equipped for the work of practically instructing students in the compounding and dispensing of medicines

The Teaching Staff of the Faculty of Medicine —Professors—Physics W Blair Morton, M A. Chemistry E A. Letts, Ph D D Sc. Zoology Gregg Wilson, M A, D Sc. Botany R H Yapp M A Anatomy J Symington, M D, F R S Physiology (Dunville Professor) T H Milroy M D, B Sc Materia Medica Sir William Whitla, M A., M D Pathology (Musgrave Professor) W St Clair Symmers M B Medicine J A. Lindsay, M A, M D, F R C P Lond Surgery T Sinclair, M D, M Ch, F R C S Eng Midwifery Sir John Byers, M A., M D, M Ch, M A.O Lecturers—Applied Anatomy P T Crymble, M B, F R C S E Medical Jurisprudence

W St C Symmers, M B, and T Houston, M D Ophthalmology and Otology J A Craig, M B, F R C S Hygiene W J Wilson, M D, D P H Bio Chemistry J A. Milroy, M D Physics R T Beatty, M A, D Sc Organic Chemistry A K Macbeth, M A, D Sc Vaccination J M'Liesh, M B, D P H Assistants and Demonstrators—Anatomy R L Rea, M B, B Sc Physiology (Vacant) Practical Pharmacy V G L Fielden, M B, Ph C Riddel Demonstrator in Pathology and Bacteriology H P Malcolm, M B Clinical Pathology T Houston, M D Medicine G G Lyttle, M B Surgery S T Irwin, M B, F R C S Edin Midwifery T S S Holmes, M B, M Ch, F R S E Internal Examiner in Sanitary Science H W Baille, L R C P & S Edin, L F P S Glasg, D P H University Clinical Lecturers—Medicine H L McKisack, M D, F R C P Surgery J Fulton, L R C P & S Midwifery and Diseases of Children Sir Alexander Dempsey, M D Ophthalmology Hayden Mulholland, L R C P & S, L F P S

Clinical instruction—The following institutions are recognised by the University as affording proper opportunities for clinical instruction the Royal Victoria Hospital, the Mater Infirmorum Hospital, the Union Hospitals, the Belfast Hospital for Sick Children, the Belfast Maternity, the Ulster Hospital for Women and Children, the Ulster Eye, Ear, and Throat Hospital, the Belfast Ophthalmic Hospital, the Purdysburn Fever Hospital, and the Belfast District Lunatic Asylum

The Royal Victoria Hospital (300 beds)—Physicians Professor Sir William Whitla, Professor James A Lindsay, Dr William Calwell, and Dr H L McKisack. Surgeons Professor T Sinclair, Mr A B Mitchell, Mr T S Kirk, and Mr R Campbell Gynæcologist Professor Sir John Byers Surgeon for Diseases of the Eye, Ear, and Throat Mr James A. Craig Pathologist Professor W St C Symmers Physician for Diseases of the Skin Dr W Calwell Physician in charge of Out-patients Dr J S Morrow Assistant Physician Dr J E McIlwaine Surgeon in charge of Out-patients Mr Andrew Fullerton Assistant Surgeon Mr Howard Stevenson. Gynæcologist in charge of Out-patients Mr R J Johnstone Surgeon in charge of Out-patients, Eye, Ear, and Throat Department Mr Henry Hanna. Assistant to the Pathologist Mr M Nelson Administrators of Anæsthetics Dr V G L Fielden and Dr W J Taggart Medical Electrician Dr J C Rankin Hæmatologist Dr Thomas Houston Medical Registrars Dr Foster Coates and Dr F B Elwood Surgical Registrars Mr S T Irwin and Mr T S S Holmes Some of the staff are on active service, and it is expected that others will later be accepted for service at the front

Mater Infirmorum Hospital (160 beds)—Consulting Physician Sir Alexander Dempsey Physicians Mr W M'Lorinan, Dr J A Black, and Dr P E O'Flaherty Surgeons Sir Peter R O'Connell, Mr J B Moore, and Mr John O'Doherty Clinical Assistant in Surgery Dr D McSparran Clinical Assistant in Gynæcology Dr A J Dempsey Anæsthetist Dr D McSparran Gynæcologist Sir Alexander Dempsey Ophthalmic Surgeon Mr H Mulholland. Pathologist Dr W St. Clair Symmers Clinical Pathologist Dr W W D Thompson Registrar Mr O'Doherty Honorary Secretary Medical Staff Mr J B Moon Dental Surgeon Mr Maurice Maguire House Physician Dr Paul House Surgeon Dr McCormick

Belfast Union Infirmary and Hospital (1700 beds)—Visiting Medical Officers Dr Robert Hall, Dr John M'Leish Dr Joseph Fulton, and Dr A Gardner Robb Ophthalmic Surgeon Mr Henry Hanna. Dental Surgeon Mr W Marshall Swan, L D S Eng Also five Resident Medical Officers

Hospital for Sick Children, Queen street (52 beds)—Consulting Physicians Dr B Smyth, Sir J W Byers, and Dr F H Sinclair Attending Physicians Dr J McCaw and Dr R L Leathem Honorary Attending Assistant Physicians Dr M B Smyth and Dr Rowland Hill Consulting Surgeons Sir J Fagan and Mr W G Mackenzie. Attending Surgeons Mr T S Kirk and Mr R. Campbell. Honorary Attending Assistant Surgeons Mr A. Fullerton and Mr P T Crymble Ophthalmic Surgeon Mr W K McCready Pathologist Professor W St. C Symmers. Surgeon Dentist Mr N White. Anæsthetist Dr W Burnside Honorary Attending Physicians to Convalescent Home (Carrickfergus) Dr James A. Clarke and Dr J Houston Honorary Secretary Medical Staff John McCaw, M D Patients, intern, 541, extern, 4624, attendances, 14,927

Maternity Hospital, Townsend street (32 beds)—Honorary Consulting Physician Dr Brice Smyth Honorary Consulting Surgeon Mr J Campbell Honorary Visiting Physicians Dr H D Osborne, Sir John Byers, Dr R J Johnstone and Dr Malcolm Brice Smyth

Ulster Hospital for Children and Women (44 beds).—Acting Staff, Children's Department—Physicians Dr J D Williamson and Dr R. W Leslie Assistant Physician Dr F C Smyth Surgeons Mr H Stevenson and Mr M Nelson Ophthalmic Surgeon Mr H. H B Cunningham Women's Department—Dr C G Lowry and Mr T Holmes Pathologist Dr T Houston Obstetric Physician Dr J D Williamson

Benn Ulster Eye, Ear and Throat Hospital (30 beds).—Consulting Physician Professor J A Lindsay Consulting Surgeon Professor T Sinclair Acting Surgeon W M Killen. Assistant Surgeons I A. Davidson and W A. Anderson Anæsthetist W Dickey Pathologist W W D Thompson Physician and Assistant Pathologist S W M'Comb

Belfast Ophthalmic Hospital, Great Victoria street (30 beds)—Practical demonstrations by the staff and occasional clinical lectures in the subjects of Ophthalmology, Otology, Laryngology, and Neurology Consulting Physician Sir W Whitla. Surgeon Mr J W Browne Assistant Surgeons Mr H H. B Cunningham and Mr Wiclif McCready Assistant Physician Dr Rowland Hill Clinical instruction is given daily Fee for three months £2 2s

City Fever Hospitals, Purdysburn (330 beds)—Physician in Charge Dr A. Gardner Robb Clinical Classes are held during the winter and summer sessions

District Lunatic Asylum (1250 beds)—Resident Medical Superintendent W Graham, M D Assistant Medical Officers Dr S J Graham, Dr N B Graham, and Dr W R Tyrrell Consulting and Visiting Physician R J Purdon, M D

IRISH MEDICAL CORPORATIONS GRANTING DIPLOMAS

ROYAL COLLEGE OF PHYSICIANS OF IRELAND

The College issues its Licences in Medicine and in Midwifery to practitioners whose names appear on the Medical Register of the United Kingdom

The Licence in Medicine—The subjects of examination are Practice of Medicine, Clinical Medicine, Pathology, Medical Jurisprudence, Midwifery, Hygiene, and Therapeutics.

The Licence in Midwifery—Candidates must produce certificates of registration A registered medical practitioner of five years' standing may be exempted from the examination by printed questions

The Membership—Examinations for Membership are held in February, June, and November The fee for the examination is £31 to Licentiates of the College, or £36 15s to non Licentiates Further particulars can be obtained from the Registrar of the Royal College of Physicians of Ireland, Kildare street, Dublin

The Fellowship—Fellows are elected by ballot Applicants must have been a Member of the College for at least one year and must have attained the age of 27 years There is a fee of £35 in addition to a stamp duty of £25

ROYAL COLLEGE OF SURGEONS IN IRELAND

The Licence in Surgery—A candidate whose name is entered either on the Medical Register for the United Kingdom, the Colonial Medical Register, or the Foreign Medical Register of the year in which he presents himself for examination, and who satisfies the Council that he has passed through a course of study and Examinations equivalent to those required by the Regulations of the Conjoint Board of the Royal College of Physicians of Ireland and the Royal College of Surgeons in Ireland, preceded by the passing of an Examination in Arts recognised by the General Medical Council, may, at the discretion of the Council, be admitted to the Examination

Candidates are examined in Surgery, Clinical Surgery Operative Surgery on the subject, Surgical Appliances and Ophthalmic Surgery

Diploma in Midwifery—A diploma in Midwifery is granted after examination to persons possessing a registrable qualification

Fellowship Examinations—Candidates for the Fellowship shall make application to the President and Council to be admitted to examination They are required to pass two examinations—Primary and Final Candidates may present themselves for the Final Examination immediately after passing the Primary part, provided they have complied with the necessary regulations The subjects for the Primary Examination are (*a*) Anatomy, including Dissections, and (*b*) Physiology and Histology The subjects for the Final Examination are Surgery, including Surgical Anatomy and Pathology For admission to the Final Examination the candidate must have passed the Primary Examination, and must be a Licentiate or Graduate in Surgery of a university or licensing body recognised by the General Medical Council, all such candidates must not be less than 25 years of age.

Further particulars as to fees and conditions of examination can be obtained from the Registrar of the College, Stephen's green, West Dublin

ROYAL COLLEGE OF PHYSICIANS OF IRELAND AND ROYAL COLLEGE OF SURGEONS IN IRELAND

Every candidate for the Conjoint Examinations of the Colleges shall produce evidence of having before entering on medical studies passed a Preliminary Examination in general education recognised by the Royal Colleges Each candidate before receiving his diplomas must produce a registrar s certificate or other satisfactory evidence that he has attained the age of 21 years

Preliminary Examination—The subjects for examination are identical with those prescribed for the Preliminary Examination by the General Council of Medical Education and Registration

Professional Examinations—Every candidate must pass four Professional Examinations—at the end of the first, second, third, and fifth years respectively of his professional studies No candidate shall be admitted to the Final or Qualifying Examination within three months of his rejection at the Final or Qualifying Examination by any other licensing body

First Professional Examination—Every candidate is required, before admission to the First Professional Examination to produce evidence—(1) of having passed in the subjects of the Preliminary Examination, and (2) of having attended a course of—(*a*) lectures on Theoretical Chemistry, six months, (*b*) Practical Chemistry, three months, (*c*) Biology, three months and (*d*) Physics

The subjects of the First Professional Examination are the following—1. (*a*) Chemistry, (*b*) Physics 2 Biology The fee for this examination is £15 15s

Second Professional Examination—Candidates are not admissible to this examination till they have passed in the subjects of the First Professional Examination, and they must produce evidence of having attended (*a*) anatomical dissections six months, and Lectures on (*b*) Anatomy, six months, (*c*) Physiology six months, (*d*) Practical Physiology and Histology, three months

The subjects of the Second Professional Examination are the following—(1) Anatomy, and (2) Physiology and Histology The fee for this examination is £10 10s

Third Professional Examination—Every candidate is required, before admission to the Third Professional Examination to produce evidence of having passed the Second Professional Examination and certificates of having attended courses of instruction in (*a*) the practice of a medico-chirurgical hospital for nine months, (*b*) Pathology—(1) Systematic, (2) Practical, three months each, (*c*) Materia Medica Pharmacy, and Therapeutics, three months, (*d*) Forensic Medicine and Public Health, three months

The subjects for the Third Professional Examination are the following—(1) Pathology, (2) Materia Medica, Pharmacy and Therapeutics, (3) Public Health and Forensic Medicine The fee for this examination is £9 9s

Final Professional Examination—Before admission to the Final Examination candidates must have passed the Third Professional Examination and produced evidence of having attended in Division I the practice of a medico-chirurgical hospital for two periods of nine months each (unless such evidence has been previously produced for admission in Division II), the practice of a recognised fever hospital or the fever wards of a recognised clinical hospital three months, clinical instruction in Mental Diseases, one month (12 attendances), Lectures on Medicine six months at a recognised medical school, of having performed the duties of medical clinical clerk in a recognised hospital for three months, of having attended a course of instruction in post-mortem examinations and demonstrations during one session In Division II of having attended the practice of a medico-chirurgical hospital for two periods of nine months each (unless such evidence has been previously produced for admission to Division I), clinical instruction in Ophthalmic and Aural Surgery, three months, lectures on Surgery, six months at a recognised medical school, instruction in Operative Surgery, three months at a recognised medical school, of having performed the duties of surgical dresser in a recognised hospital for three months, of having attended a course of instruction in the practical administration of general anæsthetics In Division III of having attended a midwifery hospital or maternity and having been present at 20 labours, six months, instruction on vaccination, six attendances to be certified by a public vaccinator, lectures on midwifery (including diseases peculiar to women and to new born children), six months at a recognised medical school Candidates are recommended to present themselves in all the subjects of the Final Examination at one time, but a candidate at or after the end of the fourth year may present himself in any one of the Divisions I, II, or III, provided he has completed his curriculum as far as concerns the division in which he presents himself The examination in at least one of the divisions must be deferred till the end of the fifth year

The subjects of the Final Examination are (1) Medicine, including Fevers, Mental Diseases, and Diseases of Children, (2) Surgery, Operative and Ophthalmic, and (3) Midwifery and Gynæcology, Vaccination, and Diseases of New born Children. The fee is £6 6s Further particulars can be obtained from Alfred Miller the Secretary of the Committee of Management, Royal College of Surgeons Stephen s-green, Dublin.

ROYAL COLLEGE OF SURGEONS IN IRELAND (SCHOOLS OF SURGERY)—The schools of surgery are attached by Charter to the Royal College of Surgeons and have existed as a department of the College for over a century They are carried on within the College buildings and are specially subject to the supervision and control of the Council who are empowered to appoint and remove the professors and to regulate the methods of teaching pursued The buildings have been reconstructed, the capacity of the dissecting room nearly trebled and special pathological, bacteriological, public health, and pharmaceutical laboratories fitted with the most approved appliances in order that students may have the advantage of the most modern methods of instruction. There are special rooms set apart for lady students The entire building is heated by hot water pipes and lighted throughout by the electric light Winter Session commences in October, Summer Session in April Prospectuses and guide for medical students can be obtained post free on written application to the Registrar, Royal College of Surgeons, Stephen s green, W, Dublin Information is given therein as to the scholarships and prizes at the College

APOTHECARIES HALL OF IRELAND

The Licence of this Hall is granted to students who present certificates of having fully completed the course of study as laid down in the curriculum and who pass the necessary examinations The diploma of the Apothecaries' Hall of Ireland entitles the holder to be registered as a practitioner in medicine, surgery, and midwifery, with also the privileges of the Apothecary s Licence. There are three professional examinations, the total fees for which amount to 24 guineas Women are eligible for the diploma

There are four examinations—primary, intermediate, Parts I and II and final They are held three times a year in March, June, and December The primary examination comprises biology, physics, theoretical and practical chemistry

(with an examination at the bench) Candidates holding a Pharmaceutical licence are exempt from this subject The intermediate examination comprises anatomy of the whole body (including practical dissections), physiology, practical histology, and materia medica. The final examination comprises medicine, surgery, and midwifery

Each candidate before receiving his diploma must produce evidence that he has attained the age of 21 years The details of the course of education required and syllabus of the examinations will be supplied on application to the Registrar at 40, Mary street, Dublin

HOSPITALS AFFORDING PRACTICE RECOGNISED BY THE IRISH UNIVERSITIES AND CORPORATIONS [1]

ADELAIDE MEDICAL AND SURGICAL HOSPITAL, Peter street, Dublin —Fee for nine months' hospital attendance, £12 12s , six months, £8 8s Summer, three months, £5 5s

Staff —Consulting Physician Dr James Little Physicians Dr Wallace Beatty, Dr H Bewley, and Dr G Peacocke Surgeons Mr T E Gordon, Mr L G Gunn, and Mr W Pearson Obstetric Surgeon Sir W J Smyly Ophthalmic Surgeon Mr J B Story Throat Surgeon Dr S Horace Law Pathologist Dr A Stokes Dental Surgeon Mr John Stanton Assistant Physician Dr W G Harvey Anæsthetist Dr Piel

Two resident surgeons are elected yearly and four resident pupils half yearly At the termination of the session prizes in Clinical Medicine and Surgery and in Dermatology will be awarded

Hudson Scholarship —In addition to the junior prizes the Hudson Scholarship, £30 and a gold medal, as well as a prize of £10, together with a silver medal, will be awarded at the end of the session for proficiency in medicine, surgery, gynæcology, and pathology

The certificates of attendance are recognised by all the Universities and licensing bodies in the United Kingdom. Further particulars may be obtained from Dr H Bewley

COOMBE LYING IN HOSPITAL AND GUINNESS DISPENSARY FOR THE TREATMENT OF DISEASES PECULIAR TO WOMEN, Dublin.—This hospital contains nearly 70 beds and consists of two divisions, one of which is devoted to lying in cases and the other to the treatment of diseases peculiar to women. The practice of this hospital is one of the largest in Ireland Lectures are delivered, practical instruction given, and gynæcological operations are performed in the theatres daily There is a general dispensary held daily, at which instruction is given on the Diseases of Women and Children There is a special afternoon dispensary held by the Master and his assistants, at which practical instruction in gynæcology is given There is no extra charge for attendance at this dispensary There is accommodation for intern pupils who enjoy exceptional advantages of acquiring a thorough knowledge of this branch of their profession Lady medical students can reside in the hospital The residents' quarters are comfortable Clinical assistants are appointed from amongst the pupils as vacancies occur Certificates of attendance at this hospital are accepted by all licensing bodies Fees Extern pupils for full course of six months, £8 8s , three months, £4 4s Intern pupils, one month, £4 4s , each consecutive month, £3 3s , six months, £18 18s , board and lodging in the hospital, 21s per week. Lady students, intern, one month, £4 4s , each consecutive month, £3 3s Registration fee, in advance, 10s 6d Students can enter for attendance at any time, but preference is given to those entering from the first day of the month Further particulars may be had on application to the Master or the Registrar at the hospital

Staff —Master Dr R A Maclaverty Assistant Masters Dr D O Morris and Dr R. J Hennessy Registrar Fred A Heney Consulting Physicians Sir John W Moore and Sir J M Redmond Consulting Surgeons Dr F W Kidd Dr M J Gibson, and Dr W Taylor Pathologist Dr E J McWeeney Pathological Analyst Sir C A Cameron

[1] This list of the institutions recognised by the Conjoint Board of Ireland is supplemented in the regulations of the Colleges by those hospitals mentioned as recognised institutions in Scotland and England The recognised facilities for clinical instruction in Belfast, Cork and Galway have been described in connexion with the Belfast and National Universities

SIR PATRICK DUN'S HOSPITAL, Grand Canal street Dublin —Classes both in Medicine and Surgery are held each morning from 9 o'clock from Oct 1st till the end of June. Special classes for junior students will be held in the wards during the months of October, November, and December The surgical operating theatre is thoroughly in accord with modern surgical requirements Instruction in the Diseases of Women is given on Tuesdays and Fridays at 10 A M There is a special wing devoted to fever cases Pathological and Bacteriological Demonstrations will be given on Fridays at 10 30 A M , when there is suitable material, A department for the special treatment of Throat, Nose, and Ear Diseases is under the direction of Sir Robert H Woods. Instruction will be given in these subjects and in the use of the Laryngoscope and Otoscope to senior students on Mondays and Thursdays Practical instruction is given in anæsthetics to senior students Practical demonstrations are given in Dentistry on Wednesdays and Saturdays Opportunities are given the members of the hospital class of seeing the various applications of the X rays to the diagnosis and treatment of injury and disease Opportunities are also afforded in the out-patient department for the diagnosis and treatment of the numerous minor ailments not met with in the hospital wards A Resident Surgeon, with salary, is appointed annually Six Resident Pupils are appointed each half-year Six Surgical Dressers and six Clinical Clerks are appointed each month.

Prizes and Medals —Clinical medals and prizes amounting to about £15 each will be awarded in Medicine and in Surgery respectively in accordance with the will of the late Rev Samuel Haughton, M D , S F T C D Candidates who fail to obtain these medals and prizes will be awarded special certificates in Medicine and in Surgery provided they show sufficient merit.

Fees —Winter and summer session, £12 12s , winter session (six months), £8 8s , and summer session (three months), £5 5s Special certificate in anæsthetics £1 1s The practice of this hospital is open to students of the School of Physic, T C D , and the certificates are recognised by the National University and Royal Colleges of Surgeons of England, Ireland, and Scotland

Consulting Physicians Dr J M Purser and Dr J Magee Finny Physicians Professor W G Smith, Dr H C Drury, Professor James Craig, and Profesor T Henry Wilson. Assistant Physician Dr E J Watson Surgeons Professor E H Taylor and Sir C A K Ball, Bart Pathologist Professor A. C O Sullivan Department for Throat, Nose, and Ear Professor Sir Robert H Woods Assistant Surgeon Dr C M Benson X Ray Department Dr E J Watson Anæsthetist Dr W C P Smyly Dentist Mr J I Kelly House Surgeon (Vacant)

Further information will be supplied by the Hon. Secretary to the Medical Board Dr H C Drury

JERVIS-STREET HOSPITAL, Dublin —Founded 1718 , rebuilt 1886 130 beds A new out patient department has been completed and contains all modern requirements. Physicians Dr F X Callaghan and Dr R J Rowlette Surgeons Mr W Stoker, Mr L. A. Byrne, Mr J L Keogan, and Mr P Hayden Assistant Surgeon Mr T W Conway X Rayist Dr H W Mason Gynæcologist Dr McArdle. Ophthalmic Surgeon (Vacant) Pathologist Mr E J McWeeney Throat and Nose Specialist Dr P J Keogh Dentist Mr A. K. Macdonald. Anæsthetist (Vacant). Secretary Mr Kieran O'Dea.

MATER MISERICORDIÆ HOSPITAL, Dublin —Physicians Sir Joseph Redmond, Dr John Murphy, and Dr Martin Dempsey Surgeons Sir Arthur Chance, Mr Alexander Blayney and Mr Denis Farnan Assistant Physicians Dr John O'Donnell Dr H Moore and Dr F X Callaghan Assistant Surgeons Mr P J Smyth Mr H Barniville, and Mr C MacAuley Gynæcologist Dr Robert Farnan Ophthalmic Surgeon Mr Louis Werner Assistant Ophthalmic Surgeon Mr R D Joyce Surgeon for Diseases of Throat and Nose Mr Patrick Dempsey Dental Surgeon Mr Ryan. Pathologist Professor Edmond McWeeney X Rayist Mr Maurice Hayes Anæsthetist and Surgical Registrar Dr Patrick O'Farrell Apothecary Mr Denis Chadwick. This hospital, the largest in Ireland containing 345 beds, is open at all hours for the reception of accidents and urgent cases. Clinical instruction will be given by the Physicians and Surgeons at 9 A M daily A course of Clinical Instruction on Fever

will be given during the winter and summer sessions. A certificate of attendance upon this course to meet the requirements of the licensing bodies may be obtained. Ophthalmic Surgery will be taught in the Special Wards and in the Dispensary Surgical Operations will be performed daily Connected with the hospital are extensive Dispensaries, which afford valuable opportunities for the study of general Medical and Surgical Diseases, and Accidents Instruction will be given on Pathology and Bacteriology Three House Physicians, eight House Surgeons, and 20 resident pupils will be elected annually Dressers and Clinical Clerks will also be appointed, and certificates will be given to those who perform their duties to the satisfaction of the staff. Leonard Prizes will be offered for competition annually For further particulars see prospectus Certificates of attendance upon this hospital are recognised by all the Universities and licensing bodies in the United Kingdom. A Private Hospital has been opened for the reception of Medical and Surgical cases A Training School and a Home for Trained Nurses have been opened in connexion with the Hospital.

Terms of attendance—Nine months £12 12s, six winter months, £8 8s, three summer months £5 5s Entries can be made with any of the physicians or surgeons, or with the Registrar, Dr Martin Dempsey 35 Merrion square A prospectus containing in detail the arrangements for Clinical Instruction, Prizes &c., may be obtained from the Secretary, Medical Board

MEATH HOSPITAL AND COUNTY DUBLIN INFIRMARY—Physicians Sir John William Moore Dr Edward E Lennon, and Dr William Boxwell Surgeons Sir L H Grimsby Mr William Taylor Mr R Lane Joynt, Dr Oliver St. J Gogarty and Mr Henry Stokes Gynæcologist Dr F W Kidd Clinical Assistant Dr Mather Thomson Pathologist Dr Brontë House Surgeons Dr Beatrice Adderley, M B B Ch B A.O Univ Dub, and Mr Briscoe This hospital was founded in 1753 and now contains 166 beds available for clinical teaching A building containing 40 beds for the isolated treatment of fevers is attached to the hospital The certificates of this hospital are recognised by all the universities and licensing bodies of the United Kingdom Six Medical Clinical Clerks and 12 Surgical Resident Pupils and Dressers are appointed every six months, and House Surgeons and Clinical Assistants are elected annually A prospectus giving the complete arrangements for the coming session may be obtained from the Secretary of the Medical Board Mr Henry Stokes, 32, Upper Pembroke-street Dublin

MERCER'S HOSPITAL.—This hospital founded in 1734 is situated in the centre of Dublin, in the immediate vicinity of the Schools of Surgery of the Royal College of Surgeons the Catholic University School of Medicine and within five minutes walk of Trinity College It contains 120 beds for medical and surgical cases and arrangements have been made with the medical officers of Cork street Fever Hospital whereby all students of this hospital are entitled to attend the clinical instruction of that institution and become eligible for the posts of Resident Pupil &c There is a large dispensary for out-patients Students of the hospital are permitted to attend the gynæcological department, where they receive practical instruction There are special wards for the treatment and study of children's diseases During the past few years the hospital has undergone extensive alterations in order to bring it up to modern requirements

Appointments—A House Surgeon is appointed annually There are Five Resident Pupils and Clinical Clerks and Dressers are appointed monthly from amongst the most deserving members of the class

Fees—Winter six months £8 8s, Summer three months £5 5s, nine months £12 12s

Consulting Physician Dr J Magee Finny Consulting Surgeon (Vacant) Consulting Gynæcologist Dr J H Glenn. Consulting Ophthalmic Surgeon Mr J B Story Physicians Dr J Lumsden and Dr F Purser Surgeons Mr R. C B Maunsell Mr S S Pringle and Mr W Ireland de C Wheeler Gynæcologist Dr Bethel Solomons Radiologist Dr T G Hardman. Pathologist Dr J T Wigham Anæsthetist Dr J Beckett Dentist J Cockburn L.D S

For further particulars apply to Dr Bethel Solomons Hon Sec. Medical Board 35 Lower Baggot street Dublin

NATIONAL MATERNITY HOSPITAL, Holles-street, Dublin—Established 1894 Masters Sir Andrew J Horne and Dr R J White The large number of cases at the hospital give great opportunities for practical work. Arrangements are made for post-graduate and special courses Certificates of attendance at the hospital are recognised by all the licensing bodies For further particulars apply to the Masters

RICHMOND WHITWORTH, AND HARDWICKE HOSPITALS, North Brunswick street, Dublin—These hospitals contain 317 beds—130 for Surgical cases, 70 for Medical cases, 77 for Fever and other Epidemic Diseases and an Auxiliary Wing of 40 beds for sick soldiers A Resident Physician and a Resident Surgeon are appointed each half year and are paid for their services 12 Resident Clinical Clerks are appointed each quarter and provided with furnished apartments, fuel &c. These appointments are open not only to advanced Students but also to those who are qualified in Medicine and Surgery The Dressers are selected from among the best qualified of the pupils without the payment of any additional fee. Women students are eligible for election as residents and special apartments are reserved for their use For prospectuses apply to Mr Adams McConnell F R C S I, Hon. Secretary, 69 Fitzwilliam-square Dublin

ROTUNDA HOSPITAL, Dublin.—This institution is the largest combined gynæcological and maternity hospital in the British Empire Women students can reside in the hospital on terms similar to those for men. Master Dr Henry Jellett Assistants Dr Simpson and Dr Gilmor Pathologist Dr R J Rowlette For further particulars apply to the Master

ROYAL CITY OF DUBLIN HOSPITAL.—Founded 1832, enlarged 1851, rebuilt 1893 150 beds Consulting Physician Sir Hawtrey Benson Physicians Dr A. R. Parsons and Dr T G Moorhead. Surgeons Mr G J Johnston, Mr H Moore and Mr R A. Stoney Ophthalmic and Aural Surgeon Mr Frank C Crawley Gynæcologist Mr G Fitzgibbon Ear Throat and Nose Surgeon Dr T O Graham Anæsthetist Mr G P Meldon Dental Surgeon Mr D L Rogers Secretary Mr Edw B Armstrong

ROYAL VICTORIA EYE AND EAR HOSPITAL, Dublin—Established 1844 Incorporated 1897 102 beds Consulting Physicians Dr J Little and Dr R A. Hayes Consulting Dental Surgeon Mr A. W W Baker Surgeons Mr J B Story Mr Patrick W Maxwell and Mr Louis Werner Assistant Surgeons Mr H C Mooney, Mr F C Crawley Mr J O Cummins Mr R. H Mathews and Miss E Maxwell Clinical Assistant Miss K. F Lynn Surgeon to Dispensary for Throat Dr T O Graham (on service in France) Surgical Radiographer Mr W S Haughton. Registrar Mr G A. Howell Anæsthetists Dr J Beckett and Dr T A. Watson In patients, 1534, out-patients, 9419 Two house surgeons appointed annually

DR. STEEVENS HOSPITAL Dublin—Established 1720 250 beds Consulting Physicians Dr J Little Dr J M Purser, and Dr H C Tweedy Consulting Surgeon Sir Arthur Chance. Physicians Dr R. A. Hayes, Dr T P C Kirkpatrick and Dr W A Winter Assistant Physician Dr J J Purser Surgeons Mr R. B McCausland, Mr R. L Swan Mr W S Haughton and Mr W C Stevenson Assistant Surgeon Dr W A. Cooke Anæsthetist Dr W H Lowe. Obstetric Physician and Gynæcologist Dr E H. Tweedy Ophthalmic and Aural Surgeon Dr R H Mathews Pathologist Dr W M. Crofton. Dental Surgeon Mr G M P Murray Resident Surgeon Dr G A. Small X Ravist Mr W D Douglas Assistant X Ravist Mr G E Pepper Scientific Adviser Mr John Joly D Sc, F R.S Assistant Dental Surgeon Mr H Hayes Secretary Mr R J Ogden Patients, 1422

ST VINCENT'S HOSPITAL AND DISPENSARY Dublin.—Established 1834 160 beds Physicians and Lecturers on Medicine Dr M F Cox, Dr W J Dargan, and Dr Meenan Physician for Extern Department Dr Magennis Surgeons and Lecturers on Surgery Mr J S McArdle Mr R. F Tobin and Mr D J Kennedy Surgeon to Extern Department Mr H Meade Gynæcologist and Lecturer on Gynæcology Mr A. J Smith. Pathologist and Lecturer on Pathology Dr T T O'Farrell. Surgeon Dentist and Lecturer on Dentistry Mr J J Murphy Pharmacist and Lecturer on Pharmacy R. Shaw

THE COLONIAL MEDICAL SERVICE

IN the self governing dominions Canada, Australia, New Zealand, the Union of South Africa, and Newfoundland, medical appointments are made concerning which information can be obtained from the High Commissioners or Agents General in London, appointments in Egypt and the Soudan are regulated from the Foreign Office, in Aden and adjacent territories the appointments are under the control of the Government of Bombay, in Rhodesia the appointments are made by the British South Africa Company, London Wall Buildings, E C, in North Borneo application should be made to the British North Borneo Company, 37, Threadneedle street, E C, for appointments, and those in Sarawak are in the hands of H H the Rajah

But in addition to all these there are a large number of important posts under the patronage of the Secretary of State for the Colonies These concern East Africa (the East Africa, Uganda Nyasaland, Somaliland and Zanzibar Protectorates), Eastern (Ceylon, the Straits Settlements, and Federated Malay States, Hong Kong, Weihaiwei, Mauritius, and Seychelles), West India (British Guiana, Jamaica, Trinidad, the Windward Islands, the Leeward Islands, Barbados, British Honduras, and the Bahamas), Fiji and the Western Pacific, Cyprus, Malta, Gibraltar, St Helena, Bermuda, and the Falkland Islands, and West Africa (Nigeria, the Gold Coast, Sierra Leone, and the Gambia) As a general rule, each Colony or Protectorate has its own public service distinct from that of every other, and it is usually only the higher officers who are transferred by the Secretary of State from one Colony to another, but there are two exceptions to this rule The West African Medical Staff, which serves Nigeria, the Gold Coast, Sierra Leone, and the Gambia form one service, and in practice the medical services of the Straits Settlements and the Federated Malay States may be regarded as one, as the officers may be and frequently are transferred from the Colony to the States, or *vice versâ* In Ceylon, Mauritius Jamaica, Barbados, the Bahamas, and Bermuda vacancies are almost always filled locally by the appointment of qualified native candidates, or—in the case of some of the higher posts—by transfer from other Colonies Appointments in Malta are all filled locally Vacancies in the Hong Kong Medical Department are generally filled by transfer from other Colonies In most cases the duties of a colonial medical officer are of a very general character, including medical, surgical and often public health work It is only occasionally that a specialist is required All applicants must be between the ages of 23 and 35 but in the case of East Africa, Uganda Nyasaland, Somaliland, and Zanzibar preference will be given to candidates who are over 25 years of age, while in the case of Fiji and the Western Pacific preference will be given to candidates who are under 30 Candidates must be doubly qualified, and the choice will usually fall, other things being equal, on those who have held hospital appointments

East African Protectorates—Medical Officers in the East Africa Uganda, Nyasaland Somaliland and Zanzibar Protectorates are appointed on probation in the first instance for three years at the end of which period their appointments are made permanent if their service has been satisfactory but special arrangements are now in force in Uganda The salary of a Medical Officer during probation is £400 per annum fixed but as soon as he has been confirmed in the permanent appointment his salary rises by annual increments of £20 to £500 per annum There are 17 appointments of this nature in the East Africa Protectorate 18 in Uganda, 11 in Nyasaland 5 in Zanzibar and 3 in Somaliland In the East Africa Protectorate there are certain special appointments—viz., Deputy Principal Medical Officer (£600-25-700 and £60 duty allowance) Bacteriologist (£600-25-700) Assistant Pathologist and Assistant Bacteriologist (£400) Two Senior Medical Officers (£500-25-600 with £50 duty allowance) Analyst (£400-20-450) Chief Sanitation Officer (£600-25-700 and £60 duty allowance) and Three Medical Officers of Health (one at £500-25-500 with £50 duty allowance, and two at £400-20-500 with £40 duty allowance) In Uganda there is a Deputy Principal Medical Officer (£500-25-600 and £50 duty allowance), a Bacteriologist (£500 and £50 duty allowance), a Sanitary Officer (£500-25-600 and £50 duty allowance), and Two Senior Medical Officers with the same emoluments The salary attached to the appointment of Principal Medical Officer in the East Africa Protectorate and in Uganda is £750 per annum rising to £850 per annum by annual increments of £25 and £600 per annum rising to £700 per annum by annual increments of £25 in the case of Nyasaland Medical Officers are permitted to take private practice on the understanding that they give precedence to their official duties There are also at present in Uganda certain temporary Medical Officers whose appointments (at a salary of £400 a year) have been created in order to cope with the work in connexion with special measures to control sleeping sickness, venereal disease, and plague. A candidate for the Uganda service will in general be offered one of these temporary appointments in the first instance and will be considered for absorption, if he wishes when an opportunity occurs provided that his service is approved Temporary Medical Officers are engaged for three years and free passages provided. If a temporary Medical Officer is subsequently appointed to the permanent staff of the Protectorate in which he has been employed on a temporary footing his temporary service will ultimately be reckoned for pension.

Straits Settlements[1]—Medical Officers are appointed as House Surgeons or Assistant Health Officers at a salary of £350 After one year's satisfactory service House Surgeons are appointed Medical Officers with salary rising from £400 to £600 Above this class there are nine senior appointments carrying salaries ranging from (rising to £720) to £750 (rising to £900) The Principal Civil Medical Officer receives £1050 rising to £1200 Duty allowances are attached to all appointments and free quarters, or an additional allowance in lieu thereof are given to House Surgeons The authorised establishment is at present 32 officers

Federated Malay States[1]—Appointments are graded as follows Principal Medical Officer £1050 to £1200 Senior Medical Officer Perak £750 rising to £900 Senior Medical Officer Selangor £ rising to £1000 seven Medical Officers, Grade I £600 by £20 annual to £720, 18 Medical Officers Grade II £350 and after one years satisfactory service £400 rising to £600, with free furnished quarters without private practice A Medical Officer is attached to the Department of Malay States Guides his salary being £360 to £480 Senior Medical Officers in Perak and Selangor and the two Grade Medical Officers in charge of Negri Sembilan and Pahang are also consulting practice only Other Medical Officers are prohibited from private practice except in very special cases where the Chief Secretary is satisfied that, owing to the absence of private practitioners, it is absolutely necessary to allow the Government Medical Officer to attend to private patients The posts of Medical Officer Grade II., in the Federated Malay States and the corresponding appointments in the Straits Settlements are filled by the promotion of officers who have entered the service as House Surgeons A non pensionable allowance varying with the appointment, is attached to all medical posts in the Straits Settlements and Federated Malay States In the case of House Surgeons the allowance is at the rate of £40 a year

Seychelles—There are four medical appointments The Government Medical Officer receives Rs 4500 The Assistant Government Medical Officers receive Rs.3000. The holders of these latter appointments have free quarters Private practice is allowed

Weihaiwei—There are two non pensionable Medical Officers on £3 rising to £400 with free quarters.

British Guiana—There are 33 appointments Candidates must have held for at least six months a resident medical appointment in some public institution Officers are appointed on two years probation as assistant medical officers and are paid a salary at the rate of £300 per annum with quarters without the right to private practice The permanent staff to which officers may be appointed at the expiration of the probationary period includes the following appointments Surgeon General £900, with travelling expenses and consulting practice Health Officer Georgetown £800 two Medical Officers at £ to £700, 12 Medical Officers at £500 to £600 15 Medical Officers at £400 to £500 and five Medical Officers at £300 to £400 two at £ Officers on the completion of two years service in the fixed £300 class automatically rise to the £300-£400 class Medical officers appointed to districts receive travelling allowances varying with the nature of the district They are also allowed private practice Medical Officers attached to public institutions are in general allowed free quarters. A deduction of 4 per cent is made from their salaries for the payment of the premiums on an insurance of the officers life for the benefit of the widow or orphans

Trinidad and Tobago—In Trinidad and Tobago there are over 4 appointments Officers are appointed in the first instance on two years probation as supernumeraries and are eligible for appointment as Government Medical Officers at the end of this period Applicants must be unmarried and must remain unmarried whilst supernumerary Medical Officers Supernumeraries receive a salary of £250 per annum without furnished quarters, and are usually attached to the Government hospital Government Medical Officers receive salary at the rate of £250 per annum with quarters in increments of £50 according to the date of first appointment as supernumerary Medical Officers Most are employed as District Medical Officers with private practice a residence or a rent allowance of £50 a horse allowance and in some cases other allowances for institution work All officers are required to contribute 4 per cent. of their salaries towards the pensions of the widows and orphans of public officers

Windward Islands (Grenada St. Lucia St Vincent)—The 25 appointments are, with few exceptions, district appointments with the right to private practice attached the salaries paid by Government vary from £250 to £350 with allowances in certain cases. The Governor has the power to transfer a medical officer from one island to another at his discretion The appointments are pensionable

Leeward Islands (Antigua, St. Christopher and Nevis Dominica, Montserrat, Virgin Islands)—The 24 appointments are of the same nature as in the Windward Islands, but are not pensionable An officer when first sent out is not appointed to a particular island but to the service of the Leeward Islands with a salary of £250 and the Governor decides as to the district which is to be allotted to him In certain districts he may be required to perform magisterial duties. The medical officers receive fees for successful vaccinations post-mortem examinations attendance and giving evidence at courts of justice certificates of lunacy and, in the larger islands, for burial certificates They are also as a rule allowed private practice

British Honduras—There are seven medical appointments (besides the principal post of Colonial Surgeon) each carrying a salary of $1,700 per annum Unless they already possess a Diploma of Public Health medical officers are liable to be required before they join the colony to undergo a course of instruction at a laboratory of public health or analogous institution The dollar = about 4s 2d

Fiji and the Western Pacific—In Fiji the Government Medical Officers receive a salary of £350 rising by annual increments of £25 to £500 with partly furnished quarters or a house allowance of £60 In some districts a medical officer is also a magistrate with a combined salary of £500 rising to £600 with free quarters They are allowed

[1] In the Straits Settlements and Federated Malay States all permanent Government servants are required to contribute 4 per cent of their salaries towards the provision of pensions for the widows and orphans of public officers

private practice *so far as is consistent with the proper discharge of* their duty to the Government, but in most districts the private practice is very small. They are required either to take charge of hospitals or of districts at the discretion of the auth rities The posts are pensionable There are at present 15 Medical Officers in addition to a Chief Medical Officer (£700 a year rising to £800) The medical services of Fiji and the Western Pacific are interchangeable While serving in the Western Pacific Protectorates their duties may be of a quasi magisterial nature and they draw an extra non-pensionable allowance of £50 per annum

Cyprus—There is a Chief Medical Officer paid at the rate of £500 per annum and three Di trict Medical Officers paid at the rate of £275 per annum all enjoying private practice (except the Chief Medical Officer who is allowed consulting practice only) and receiving 2s per diem forage allowance these are the only medical appointments in the island which are open to English candidates

Gibraltar—There is a surgeon of the Colonial Hospital receiving £400 with fuel and light allowance and private practice He also receives £50 for medical examination of school children There are also two Assistant Surgeons with a salary of £350 per annum who are allowed private consulting practice only Free quarters unfurnished are provided for all three officers

St Helena—The Colonial Surgeon at present receives £270 per annum and £27 horse allowance Private practice is allowed

Falkland Islands—There are two appointments The Colonial Surgeon is paid at the rate of £350 per annum with £25 as Health Officer The Assistant Colonial Surgeon is paid at the rate of £400 per annum without quarters Part of the salary is provided from private sources Private practice is allowed to the Colonial Surgeon and to a lesser extent to the Assistant Colonial Surgeon

Leave and Passages—In the East African Protectorates leave of absence on full salary is granted in the normal case after a tour of residential service (of not less than 20 nor more than 30 months) to an amount of five days for each completed month of residence (or 2½ days when for any reason the officer is not returning to East Africa) exclusive of the periods of the voyages to and fro Officers serving in Uganda, Zanzibar, or in certain stations in the East Africa and Nyasaland Protectorates are allowed six or three days leave respectively in respect of each month of service In Somaliland special leave regulations exist which provide for an officer taking leave approximately every year Free first-class passages are provided for the officer only In the Malay Peninsula two months leave of absence with full salary may be granted in respect of each year s service and this leave may be accumulated up to a maximum of eight months Additional leave on half pay may be granted on special grounds If an officer on the occasion of his first leave is in receipt of a pensionable salary of less than £500 a year he is granted a free return passage to the United Kingdom In Hong Kong leave of absence on half salary may be granted after 4½ years service and a portion of such leave may be commuted if the Governor agrees for half the amount on full pay Leave of absence in excess of 10 months at a time will not be granted but an extension may be allowed for ill health or very urgent private affairs

Subject to the necessities of the service leave of absence on half salary may be granted to officers in other Colonies outside tropical Africa after a period of six years resident service without any special grounds Officers of the Fiji and Western Pacific service proposing to spend their leave in Europe may receive a grant in aid of passage expenses of £60 Leave may be given before the expiration of the due period in case of serious indisposition or of urgent private affairs In the absence of special grounds the leave must not exceed one-sixth of the officer s resident service on special grounds it may exceed that period by six months In addition to the above vacation leave on full pay may be granted if no inconvenience or expense is caused thereby not exceeding three months in any two years In the case of Fiji and the Western Pacific and the Falkland Islands 4½ months leave may be granted in any three years

On first appointment an officer whose salary and fees together do not exceed £500 a year will except in the case of a few Colonies possessing Representative Assemblies be provided by the Crown Agents f r the Colonies with free passages to the Colony for himself and his wife and children if any not exceeding four persons besides himself The officer so appointed will be required to execute an agreement b nding him to repay the cost of the passage or passages so obtained in the event of his leaving the Government service within three years This rule applies also to officers appointed to the Malay Peninsula and Hong Kong An officer taking leave out of the Colony has to provide his own passages

Pensions—Officers on the pensionable establishment in the East African Protectorates are at liberty to retire on attaining the age of 50 years Earlier retirement in the event of ill health is also provided for Pensions are computed on the scale of one sixtieth of the average annual salary of the retiring officer s fixed appointments for three years prior to retirement but for purpo es of calculating pensions two years service is reckoned as service for three years In most of the other Colonies an officer holding a pensionable appointment may be allowed in the case of ill health to retire on a pension after ten full years resident service otherwise he must have attained the age of 55 For ten full years resident service fifteen sixtieths of the average annual salary of the retiring officer s fixed appointments for three years prior to retirement may be awarded to which one-sixtieth may be added for each additional year s service but no addition will be made in respect of any service beyond 55 years For pension purposes absence on vacation leave counts as full service and leave on half pay as half service In a few cases the retiring age is 60 and the pension after ten years service is ten sixtieths instead of fifteen

West African Medical Staff

The medical services of the West African Colonies and Protectorates—namely the Gambia Sierra Leone the Gold Coast (including Ashanti and the Northern Territories) and Nigeria—form one service under the above name All the medical officers for the service are selected by the Secretary of State for the Colonies and are on one list for employment and promotion As in other Colonies applicants must be between 23 and 30 years of age and possess a double qualification but preference is given to those over 25 and the unmarried. The higher grades are usually filled by promotion from the lower

The grades and emoluments of officers of the staff are as follows:—

Director of the Medical and Sanitary Services This post exists in Nigeria only The salary attached to it is £1400 a year with a duty allowance at the rate of £280 a year

A duty allowance is payable to the holder of the appointment to *which it is attached only while he is actually performing its duties* and during his absence or incapacity it is paid at the discretion of the Governor to the officer performing them for the time being A duty allowance is not a pensionable emolument

Principal Medical Officer The Principal Medical Officers receive salary as follows In Nigeria (Southern Provinces) £1200 a year, with a duty allowance at the rate of £240 a year In Nigeria (Northern Provinces) £1100 a year with a duty allowance at the rate of £220 a year In the Gold Coast £1200 a year, with a duty allowance at the rate of £240 a year In Sierra Leone £1000 a year with a duty allowance at the rate of £200 a year There is no Principal Medical Officer in the Gambia

Deputy Principal Medical Officer: There are four appointments of this grade three in Nigeria and one in the Gold Coast. Salary at the rate of £800 a year rising by annual increments of £25 to £1000 a year is attached to these appointments together with a duty allowance at the rate of £160 a year

Senior Sanitary Officer: There are four appointments of this grade, two in Nigeria, one in the Gold Coast and one in Sierra Leone Salary at the rate of £900 a year rising by annual increments of £25 to £1000 a year is attached to these appointments together with a duty allowance at the rate of £180 a year

Provincial Medical Officer: There are seven appointments bearing this title (four in Nigeria, two in the Gold Coast and one in Sierra Leone) with salary at the rate of £800 a year rising by annual increments of £25 to £900 a year and duty allowance at the rate of £160 a year

Senior Medical Officer There are 20 appointments of this grade, with salary at the rate of £600 a year, rising by annual increments of £25 to £750 a year and a duty allowance at the rate of £120 a year

The Senior Medical Officer of the Gambia, who is the head of the Medical Department of that Colony draws staff pay at the rate of £120 a year in addition to duty pay

Junior Sanitary Officer There are seven appointments of this grade, with salary at the rate of £700 a year rising by annual increments of £25 to £800 a year and a duty allowance at the rate of £140 a year

Medical Officer The salary attached to this grade is at the rate of £400 a year rising by annual increments of £20 to £500 a year with duty allowance at the rate of £80 a year Medical Officers who have served for five years and are recommended for a higher rate of salary are required to take a special course of study for three months If they obtain satisfactory certificates at the end of the course they are placed on competing six years service on a scale of salary at the rate of £525 a year rising by annual increments of £25 to £600 a year with duty allowance at the rate of £100 a year A Medical Officer who has served for three years on the maximum salary of this scale (£600) without obtaining promotion is eligible for the grant of further annual increments of £25 up to a total maximum salary of £750 a year Salary at the rate of £500 rising by annual increments of £25 to £600 a year is attached to about ten posts (those of Pathologist at Accra, Assistant at the Medical Research Institute near Lagos and Medical Officer of Health at various places) irrespective of the seniority of the officer holding the appointment In addition to the duty pay (£100 a year) staff pay at the rate of £100 a year is also attached to these posts and the holder of the appointment draws half of the staff pay during leave of absence,[3] the remainder being drawn by his locum tenens Certain other allowances are also drawn by members of the Staff (a) When the Principal Medical Officer certifies that it is necessary for a medical officer to keep some means of conveyance to enable him efficiently to perform his official duties he may be granted an allowance (b) The Government carries free of cost a reasonable amount of stores (c) Government officers in Sierra Leone the Gold Coast and Nigeria receive when travelling on duty away from their stations, free transport and travelling (or bush) allowance In the Gambia the travelling allowance is fixed at a rate which includes the cost of transport (d) All medical officers whatever their rank while employed with a military expedition will be paid an allowance of 10s a day; and they will also be given free rations or an allowance of 3s a day in lieu of rations, whenever other officers employed with the expedition are given free rations or an allowance in lieu of rations While in receipt of these allowances medical officers will not be entitled to any repayment or allowance under (c) (e) An allowance of £12 is paid to every medical officer before his departure on first appointment towards the purchase of camp outfit Instruments and drugs and all medical appliances (including microscopes when necessary) are supplied by the Government for all public purposes

Leave and Passages—The ordinary tour of residential service is one year followed by leave with full pay during the voyages to and from England and for four or two months clear in England according as the officer is returning for further service in West Africa or not If an officer is detained beyond the year additional leave is given with full pay for ten days in respect of each completed month beyond twelve whether he is returning or not If he is invalided before the end of the year the leave with full pay s for the voyages and for ten or five days in respect of each completed month according as he is returning or not Leave granted on the understanding that an officer will return is known as return leave and any pay drawn in respect of such leave is liable to be refunded if he does not return Medical officers desiring an extension of ordinary leave of absence for purposes of study may be granted such extensions with half salary Leave may be extended with half pay for a period not exceeding four months on the ground of ill health or without pay on that or other grounds Free passages are given to all officers who are granted leave and free passage is also given on first appointment subject to the officer signing an agreement under which he is liable to refund its cost if he relinquishes his appointment for any other reason than physical or mental infirmity or is removed for mi conduct within three years from the date of his arrival in West Africa. Half pay is given during the voyage out on first appointment The period of probation for Medical Officers is two tours of service

All officers of the Staff except Principal Medical Officers Deputy Principal Medical Officers Provincial Medical Officers Sanitary Officers and a few other officers holding special appointments are at present allowed to take private practice provided that it does not interfere with the efficient performance of their official duties but it is within the power of the Governor to withdraw or suspend the privilege in such places and for such periods as he may consider desirable. Private practice does not exist

[3] That is during leave on full salary During leave on half salary he draws only one-quarter of the staff pay; during leave without salary he draws no staff pay

at the majority of stations and as a general rule subject to the exigencies of the service stations where there is private practice are allocated to senior members of the staff At all the recognised stations single quarters free of rent (but not of rates and similar outgoings) are provided for medical officers or an allowance is paid in lieu of quarters

Pensions and Gratuities —On attaining the age of 50 years or after 18 years service (of which at least 12 must have been residential) an officer is qualified for a pension calculated at one-fortieth of the last annual[3] salary for each year of service If invalided after a minimum of seven years' service he is qualified for a pension calculated at the same rate If invalided before completing seven years service he is qualified for a gratuity not exceeding three-quarters of a month s salary for each six months of service provided that he has been confirmed in his appointment For the purpose of calculating the amount of these pensions and gratuities leave of absence without salary is not counted In addition to the ordinary regulations an officer of the West African Medical Staff enjoys the following special privilege At the end of nine years (of which not less than six must have been residential) he will be permitted to retire with a gratuity of £1000 or at the end of 12 years (of which not less than eight must have been residential) with a gratuity of £1200 All claims to pensions are however forfeited on the receipt of such a gratuity In the event of an officer dying in the service after completing the period of residence qualifying him for the smaller or the larger of these gratuities a sum equal to the gratuity in question will be paid to the credit of his estate Officers are recommended not to take their wives out with them until they have acquired experience of the local conditions and have obtained the sanction of the Governor Passages for wives and children are not provided If a candidate is offered an appointment he can usually be allowed sufficient time to make preparations and to terminate the employment in which he may be engaged.

Candidates for medical appointments in West Africa are allowed to express a preference for any particular Colony or Protectorate and their wishes in this respect will be borne in mind and met as far as possible but they are liable to be posted in the first instance, or transferred afterwards if necessary to any other West African Colony or Protectorate at the discretion of the Secretary of State Candidates who wish to be posted to the Northern Provinces of Nigeria or the Gambia should be able to ride Officers who may be transferred to pensionable appointments under the Crown elsewhere than in West Africa do not forfeit their claim to pension in respect of their West African service on final retirement provided they have been members of the Staff for at least 12 months

Instruction in Tropical Medicine —Every candidate selected for appointment will unless the Secretary of State decides otherwise, be required to undergo a course of instruction for two or three months either at the London School of Tropical Medicine Royal Victoria and Albert Docks E (near Connaught Road Station) or at the Liverpool School of Tropical Medicine at University College Liverpool The cost of the tuition fees board and residence during such instruction, amounting to a maximum of £48 8s 10d for three months will be borne by the Government in the case of the London School at Liverpool the cost of tuition will be borne by the Government but candidates must make their own arrangements for board and lodging an allowance of £2 a week will be paid to them monthly in arrear for this purpose A daily allowance of 5s (but no salary) will be paid to each candidate monthly in arrear during the course and may be continued subsequently up to the date of embarkation These payments must be refunded by the candidate if he declines to accept an appointment in any of the Colonies or Protectorates for which he may be selected if he fails to obtain a certificate showing that he has satisfied the school authorities or if he relinquishes the West African service for any other reason than mental or physical infirmity or is removed for misconduct, within three years of the date of his arrival in West Africa If at the end of the session there exist no vacancy in the staff to which a candidate can be appointed, he will be placed in a Reserve and granted an allowance at the rate of £200 a year until the occurrence of a vacancy If a medical officer has for any reason not taken a course of instruction prior to appointment he must take it during his first leave of absence

Course of study for higher scale of salary —The approved course of study is the three months course of the West London Post-Graduate College or the London School of Clinical Medicine Greenwich, in clinical medicine clinical surgery and pathology Officers are allowed to substitute for this course either the course of study and examination for a recognised diploma or degree in public health sanitary science, or State medicine the course of study and examination for a further medical or surgical diploma or degree or if the Governor, on the recommendation of the Principal Medical Officer approves—a course of study in some special branch of medical or surgical practice (e g ophthalmology dermatology genito-urinary diseases) or an advanced course at the London or Liverpool School of Tropical Medicine Whichever of these courses of study is selected the necessary tuition and examination fees will be paid by the Colonial Government save in the event of an officer s deciding to enter for a further medical or surgical diploma or degree

In conclusion it should be added that the West African Medical Staff, from which many British medical officers have been lent to serve with the allied forces receive terms and emoluments which compare favourably with other medical services of the Crown Since the outbreak of war it has been the policy of the Secretary of State for the Colonies to refrain from calling the attention of the medical profession to recent improvements in the pay and prospects of the West African Medical Staff in order that the efforts of the naval and military authorities to obtain an adequate supply of medical officers should not be hampered in any degree This consideration no longer applies as it has been so widely recognised by all the younger members of the medical profession that the claims of the Navy and Army are paramount

[3] Except that the pension of an officer who has been promoted within three years of his retirement is calculated on the average of his salary for the last three years

DENTAL SURGERY

ANYONE who is on the Medical Register is entitled practise as a dentist, although he cannot register as su without the special licence, but it is of eminent advanta to take the L D S, otherwise few dental appointments general or special hospitals or dispensaries are availab The subjects beyond those included in the gene qualification are—Dental Anatomy and Physiology (Hum and Comparative), one course, a separate course Dental Histology, including the preparation of mic scopical sections, Dental Surgery, one course, a separ course of Practical Dental Surgery, a course of n less than five lectures on the Surgery of the Mout Dental Mechanics, one course, a course of Practic Dental Mechanics, including the manufacture and adjus ment of six dentures and six crowns, Dental Metallurg one course, a course of Practical Dental Metallurgy, Pra tice of Dental Surgery at a recognised school, two years, ar a certificate of having been engaged during a period of n less than two years in acquiring a knowledge of Dent Mechanics (this may be obtained by apprenticeshi to a duly qualified dental practitioner or in th mechanical department of a recognised dental hospital The Dental Schools in London are the Royal Dent Hospital of London, the National Dental Hospital, Guy Hospital Dental School, and the London Hospital Dent School. Most of the large provincial towns, where ther are medical schools, have now dental hospitals

The Registration of Dental Students is carried on at th Medical Council Office in London in the same manner a the existing registration of medical students, and subject t the same regulations as regards Preliminary Examinations Candidates for a diploma in Dental Surgery must produce certificates of having been engaged during four years in professional studies, including two years instruction in mechanical dentistry The two years of instruction in mechanical dentistry, or any part of them, may be taken by the dental student either before or after his registration as a student, but no portion of such mechanical instruction will be counted as one of the four years of professional study unless taken after registration

It is necessary for anyone practising Dental Surgery in this country to be on the Register, and no foreign qualifi cations are admitted, except the Dental Diploma granted in Belgium after examination by the Provincial Medical Com mission Certain dental qualifications granted in Australia and New Zealand are also registrable The Royal Colleges of the United Kingdom and seven of the Universities grant degrees or licences in Dental Surgery

THE REGISTERING BODIES IN DENTISTRY

The Royal College of Surgeons of England grants a diploma in Dental Surgery under the following regulations which apply to all candidates who have registered as dental students after Jan 1st, 1897 Candidates are required to pass three examinations the Preliminary Science Exami nation, the First Professional Examination, and the Second Professional Examination I Preliminary Science Exami nation —This is identical with Part I of the First Examination of the Examining Board in England. Candidates who commenced professional study on or after Oct 1st, 1913, must pass the Preliminary Science Examination before commencing the courses required for the Second Professional Examination II The First Professional Examination —The candidate must produce evidence of instruction in Dental Metallurgy and Practical Dental Mechanics The Examination consists of Part I (Mechanical Dentistry) and Part II (Dental Metallurgy) the examination in Dental Metallurgy being by written paper The parts may be taken together or separately III The Second Professional Examination —This is divided into two parts (a) the General, (b) the Dental The General part must be passed before the Dental portion The instruction is obtained partly at a General Hospital and partly at a Dental Hospital.—The Second Professional Examination consists of Part I, General Anatomy and Physiology, General Surgery and Pathology, Part II, Dental Anatomy and Physiology, Dental Pathology and Surgery and Practical Dental Surgery The written examination in Part I comprises General Anatomy and Physiology

General Pathology and Surgery and in Part II, Dental Anatomy and Physiology and Dental Pathology and Surgery and a Practical Examination Exemption from the Preliminary Science Examination is granted to candidates who have passed an Examination in Chemistry and Physics for a degree in Medicine at a University in the United Kingdom in India or in a British colony Exemption from Examination in Anatomy and Physiology is granted to candidates who have passed the Second Examination of the Examining Board in England or the corresponding Examination for any degree or qualification in Medicine or Surgery registrable under the Medical Act of 1886 Exemption from Examination in General Surgery and Pathology is granted to candidates who have passed the Examination in Surgery of the Examining Board in England or the corresponding Examinations of the Colleges and University above mentioned. The fee for the diploma is 20 guineas and is payable as follows — Preliminary Science Examination 3 guineas, First Professional Examination, 2 guineas, Second Professional Examination, 5 guineas, the balance to be paid on the completion of the Examinations Synopses of examinations and all further information can be obtained from the Secretary, Examination Hall, Queen square Bloomsbury

Royal College of Surgeons Edinburgh —Regulations giving a list of Preliminary Examinations recognised for obtaining the Licence in Dental Surgery as well as of the subjects of the Professional Examinations may be obtained from Mr D L. Eadie, Clerk to the Royal College of Surgeons at 50 George square Edinburgh. Candidates must produce certificates of having subsequently to the date of registration, been engaged for four years in professional studies and of three years instruction in Mechanical Dentistry from a registered dental practitioner, except in the case of previously registered medical practitioners when two years will be considered sufficient. Candidates must also have attended a course of instruction at a University or in an established school of medicine or in a provincial school specially recognised by the College as qualifying for the Diploma in Surgery In addition they will be required to have attended in a recognised dental hospital or with teachers recognised by the College special courses of lectures and instruction in Anatomy and Physiology (Human and Comparative) Surgery Pathology Materia Medica Dental Histology and Practical Dental Mechanics and Metallurgy, two years attendance at a dental hospital or the dental department of a general hospital recognised by the College Practical instruction in Mechanical Dentistry from a registered Dentist or in the Mechanical Department of a recognised Dental Hospital and School, for three years Candidates who have passed the First and Second Examinations for the Triple Qualification will be exempt from the First Dental Examination and will have the advantage of being admissible either to the Final Dental Examination or to the subsequent Examination for the Triple Qualification or to both But the First Dental Examination will not be held as equivalent to the First and Second Triple Examinations and will admit to the Final Dental Examination only Candidates who are Licentiates of this College or who may be registered medical practitioners will be required to produce certificates of attendance on the special subjects only and will be examined in these only for the dental diploma First Professional Examination The candidate must have attended the required courses The examination embraces (1) Chemistry and Physics and (2) Anatomy and Physiology The fee is £5 5s for the complete examination and £3 3s is payable for each division In all cases of rejected candidates the fee for re-entry is £3 3s Second Examination The candidate must have attended the remaining courses of the curriculum must produce certificates showing that he is 21 years of age and must pay a fee of £10 10s for re-entry £5 5s The examination embraces (1) Surgery and Medicine, and (2) the special subjects of Dental Anatomy and Physiology Dental Surgery and Pathology Dental Materia Medica Dental Mechanics and Dental Metallurgy with a practical as well as the written and oral examinations in the subjects of Dental and Oral Surgery Pathology and Mechanics The candidate will be tested in the Treatment of Dental Diseases in Operative Dentistry the Administration of Anæsthetics Orthodontics and in Prosthetic and Mechanical Dentistry Candidates who claim exemption from the First Dental Examination on the ground of having passed the First and Second Triple Qualification Examinations or other recognised examinations will before being admitted to the Second Dental Examination, be required to pay the total fee of £15 15s payable for the dental diploma. Fees and schedules must be lodged with the Clerk not later than one week before the examination.

Royal Faculty of Physicians and Surgeons of Glasgow — The regulations as to certificates, curriculum, number, and subjects of examinations fees, &c., are in effect similar to those of the Royal College of Surgeons of Edinburgh, but embrace Dental Bacteriology Candidates can enter for the First Examination in three divisions, the first embracing Physics and Chemistry, the second Dental Metallurgy and Dental Mechanics, and the third Anatomy and Physiology The examination in Dental Mechanics is practical, and there is at the Final Examination an examination in Practical Dentistry conducted in a dental hospital. Copies of regulations, &c, to be obtained from Mr Walter Hurst, Registrar Faculty Hall, 242, St. Vincent-street Glasgow

Royal College of Surgeons in Ireland —Candidates for the Licence in Dental Surgery are required to pass two professional examinations Before the First Examination the candidate must produce evidence of having attended courses in Theoretical and Practical Chemistry including Metallurgy and Physics, at a recognised institution, of having been registered as a medical or dental student by the General Medical Council, and of having attended courses of instruction in the following subjects at a recognised school of medicine (*a*) Anatomy Lectures, (*b*) Dissections with Demonstrations, (*c*) Physiology including Dental Physiology, (*d*) Practical Physiology and Histology, including Dental Physiology and Histology, Human and Comparative Before the Final Dental Examination the candidate must have been engaged during a period of two years in acquiring a practical familiarity with the details of Mechanical Dentistry under the instruction of a registered dentist, or under the direction of the superintendent of the Mechanical Department of a recognised Dental Hospital, and have attended at institutions recognised by the College for the purpose, the following courses of instruction (*a*) Dental Surgery and Pathology Orthodontia and the Materia Medica and Therapeutics applicable to Dental Surgery Lectures Two courses (*b*) Dental Mechanics Lectures Two courses (*c*) Dental Anatomy Lectures One course. (*d*) The practice of a Dental Hospital, or of the Dental Department of a General Hospital Two years He must also have attended Clinical instructions at a recognised General Hospital during the ordinary teaching sessions (nine months) and have been engaged during four years in the acquirement of professional knowledge subsequently to the date of registration as a medical or dental student. One year's *bonâ fide* apprenticeship with a registered dental practitioner after being registered as a medical or dental student may be counted as one of the four years of professional study He must be 21 years of age

In the First Dental Examination candidates will be examined in (A) Physics and Chemistry including Practical Chemistry and Metallurgy (B) Anatomy, Physiology, and Histology—General and Dental. All the subjects may be passed at the same time or they may be passed in two groups (A) and (B) The examination is partly written partly viva voce and partly practical

In the Final Dental Examination candidates will be examined in General Pathology Medicine and Surgery, Dental Surgery and Dental Pathology with the Materia Medica and Therapeutics applicable to Dental Surgery, Dental Mechanics and Metallurgy, Orthodontia. Candidates must pass in all the subjects at one examination The examination is partly written partly viva voce and partly practical and includes the examination of patients and the performance of dental operations Candidates are required to provide their own instruments and gold for filling The First Dental Examination will commence on the first Mondays in the months of February May and November The Final Dental Examination will commence on the second Mondays in the months of February May and November The total fee for the Diploma in Dental Surgery is 20 guineas Candidates must pay the fees for examinations from which they are exempted, unless when such exemptions have been granted in virtue of examinations passed before the Conjoint Board in Ireland

University of Birmingham —The teaching of Dentistry is undertaken by the University acting in association with the Birmingham Dental Hospital and the Birmingham Clinical Board The instruction at the Dental Hospital is carried out under the direction of the University Dental Clinical Board, so that students may fully qualify themselves for the Dental Diploma (L D S) of this and other universities and licensing bodies There is a special and well-equipped Dental Museum and Laboratory An Entrance Exhibition, value £37 10*s* is awarded annually at the commencement of the winter session The following are the regulations for Degrees in Dentistry —1 The degrees conferred by the University are those of Bachelor and Master of Dental Surgery (B D S and M D S) 2 All candidates for these degrees must pass the same Matriculation Examination as that required from candidates for Medical Degrees 3 The degree of Bachelor of Dental Surgery is not conferred upon any candidate who has not obtained a Licence in Dental Surgery The candidate is not eligible for the degree until a period of 12 months has elapsed from the passing of his examination for the Licence in Dental Surgery Of this period at least six months must be spent in the dental department of a general hospital approved by the University 4 *A* In addition to the Licence in Dental Surgery the candidate must produce evidence that he has attended the courses required by medical students of the University in the following subjects and passed the Examinations held in the same for Medical and Surgical Degrees (*a*) Chemistry and Practical Chemistry, (*b*) Physics and Practical Physics, (*c*) Elementary Biology, (*d*) Anatomy and Practical Anatomy, and (*e*) Physiology and Practical Physiology *B* That he has passed the class examinations in (*f*) One Special Course of Lectures on Medicine, (*g*) One Special Course of Lectures on Surgery, and (*h*) Pathology and Bacteriology *C* That he has attended courses and passed the class examinations in (*k*) Dental Histology and Patho-Histology, (*l*) Comparative Dental Anatomy, and (*m*) Dental Surgery and Prosthetic Dentistry *D* That he has received instruction in the Clinical Examination of living cases at the dental department of a general hospital for a period of not less than six months 5 The Final Examination will deal with the subjects in Classes *C* and *D* 6 On the expiration of 12 months from the date of passing the Examination for the Degree of Bachelor of Dental Surgery, the candidate will be eligible for that of Master of Dental Surgery 7 For this degree candidates will be required to submit a thesis containing original work and investigations in some subject connected with Dentistry, which thesis shall be submitted to examiners to be nominated by the Dental Advisory Board

University of Bristol —Candidates for the degree of Bachelor of Dental Surgery must be not less than 21 years of age and shall have pursued the courses prescribed by University regulations during not less than five years, of which three shall have been passed in the University, and shall have been registered as dental students by the General Medical Council All candidates for the degree of B D S are required to satisfy the examiners in the several subjects of four examinations the First Examination the Second Examination, the Third Examination, and the Final Examination The First Examination The subjects are Chemistry, Physics and Zoology, and the curriculum extends over one year The Second Examination The subjects are Dental Mechanics Dental Metallurgy, and Dental Materia Medica, and the candidate shall produce evidence of having served for two years an approved pupilage in Dental Mechanics The Third Examination The subjects are Anatomy, Physiology, and Histology, Dental Anatomy and Dental Histology The Final Examination The subjects are Medicine and Surgery, Dental Surgery (including Prosthetics), Operative Dental Surgery, and Dental Bacteriology Degree of Master of Dental Surgery Candidates shall be Bachelors of the University, shall present a Dissertation on some subject of Dental Surgery to be approved by the Examiners and pass an examination in Dental Surgery Diploma in Dental Surgery Candidates need not be undergraduates, but shall be registered dental students before being admitted to any professional examination, the curriculum extends over four years A two years pupilage in Mechanical Dentistry is required and four examinations must be passed the subjects of which differ only from those of the *B D S* in that Zoology is not required for the First Examination, and Medicine is required for the Final Examination Candidates who already registered medical practitioners shall be further exempted from study and examination in Physics and Chemistry, Anatomy, Physiology and Histology, Medicine and General Surgery

University of Durham —Every candidate for the Licence in Dental Surgery must be registered as a dental student There are four Examinations The subjects are —*First* (*a*) Chemistry, and (*b*) Physics *Second* (*a*) Dental Mechanics, Theoretical and Practical, (*b*) Dental Metallurgy *Third* (*a*) Anatomy, (*b*) Physiology and Histology (*c*) Dental Anatomy and Dental Histology, and (*d*) Dental Materia Medica *Final* (*a*) Surgery, (*b*) Dental Surgery including Prosthetics and Orthodontia, (*c*) Operative Dental Surgery, Practical Examination, and (*d*) Dental Pathology and Bacteriology A candidate before presenting himself for examination is required to furnish certificates of instruction in the following subjects, attended after registration as a dental student at recognised Colleges or Schools —*First Examination* Chemistry and Physics *Second Examination* Dental Mechanics and Dental Metallurgy *Third Examination* Anatomy, with Dissections Physiology, Histology, Dental Anatomy and Physiology Dental Histology, and Dental Materia Medica *Final Examination* Dental Hospital Practice (two years) General Hospital Practice (nine months), Medicine Lectures (two terms), Surgery Lectures (two terms), Dental Surgery and Pathology (a course of not less than 20 lectures) Dental Bacteriology (three terms), Operative Dental Surgery (not less than 12 lectures), and Anæsthetics (a course not less than one month)

Before admission to the Final Examination each candidate must furnish evidence (1) of having attained the age of years, (2) of having undergone a three years pupilage Mechanical Dentistry with a registered dentist, and (3) having been engaged in professional study for at least five years subsequent to registration as a dental student. The examinations will be held concurrently with the medical examinations, and the fees payable by candidates are as follows First Examination, £2 10*s* , Second Examination £2 10*s* , Third Examination, £3 10*s* , Final Examination £3 10*s* , fee for Licence £3 , total £15 For re-examination First Examination, £1 10*s* , Second Examination £2, Third Examination, £2 (in one part only, £1), Fourth Examination £2 The practical examinations in dentistry will be conducted at the Newcastle Dental Hospital.

University of Leeds —The degrees in Dental Surgery are Bachelor of Dental Surgery (B Ch D) and Master of Dental Surgery (M Ch.D) All candidates for the degree of Bachelor of Dental Surgery shall be required to have passed the Matriculation Examination, to have pursued thereafter approved courses of study for not less than five academic years, two of such years at least having been passed in the University subsequently to the date of passing parts I and II of the First examination and to have completed such period of pupilage or hospital attendance, or both, as may be prescribed by the regulations of the University No candidate will be admitted to the degree who has not attained the age of 21 years on the day of graduation All candidates are required to have passed the following examinations the First Examination, the Second Examination and the Final Examination Each examination will include practical work in the subjects offered. All candidates shall be required, before presenting themselves for examination, to furnish certificates testifying that they have attended the prescribed courses of instruction in accordance with the regulations of the University in each of the subjects which they offer and that they have fulfilled the other requirements of the ordinance and regulations in respect of such examination Candidates for the Diploma in Dental Surgery (L D S) are required to present certificates showing that they have attained the age of 21 years, that they have attended courses of instruction approved by the University extending over not less than four years, and that they have completed a pupilage of three years, or of such years at least having been taken before the First Professional Examination Candidates are required to satisfy the examiners in the several subjects of the following examinations A preliminary examination in Arts, a preliminary examination in Science, the First Professional Examination, and the Final Examination

The classes in the Department of Dentistry will begin in October The instruction in the Preliminary subjects of Chemistry, Physics and Biology will be given at the University in College road The classes in the other subjects and the systematic courses in Dental subjects will be held in the School of Medicine of the University in Thoresby Place The clinical instruction will be given in the Dental Department of the Leeds Public Dispensary, which is affiliated with the University and recognised by the Royal College of Surgeons. Applications for the prospectus should be made to the Dean of the Faculty of Medicine.

University of Liverpool (Liverpool Dental Hospital Clinical School and School of Dental Surgery).—The University grants a Licence in Dental Surgery (L D S) and degrees in Dental Surgery (B D S and M D S) The courses of systematic instruction are given in the University buildings five minutes' walk from the Dental Hospital The two institutions are now closely associated, and the management of the curriculum is in the hands of the Board of Dental Studies The Dental Hospital covering a site of 672 square yards was opened in March 1910, equipped in each department with every modern accessory and receives constant additions The laboratory is in charge of a skilled dental mechanic under the supervision of the Director of Dental Education and Dental Staff and students are able to undertake at the hospital the whole of their training in Mechanical Dentistry The times of the lectures at the University are arranged to meet the convenience of students thus allowing the maximum time for attendance upon Dental Hospital practice. The staff of the hospital includes 12 Dental Surgeons, three Demonstrators six Anæsthetists three House Surgeons and a Curator Fees The composition fees are as follows Licence course (L.D S) Composition fee £58 10s for the course of other licensing bodies £61 10s payable in two equal instalments, the first on entry the second 12 months later Two years instruction in Mechanical Dentistry (pupilage) and two years Dental Hospital Practice (combined), £100, or in two instalments of £52 10s each. Degree course (B D S) £67 10s for all lectures (including Chemistry, Physics and Zoology) in three instalments Two years' dental hospital, £21, general hospital practice, £10 10s, three years mechanical instruction (pupilage), £105 Further information may be had from the Director of Dental Education Mr W H Gilmour

University of Manchester—In the University of Manchester the Dental Department forms an integral part of the Faculty of Medicine This contains a series of laboratories, lecture rooms, and museums which will bear comparison with those of any other school in the kingdom and the fullest opportunities for study are offered to students preparing for any of the professional examinations Instruction adapted to the requirements of students preparing for the B D S Degree and the Dental Diplomas of the University the Royal College of Surgeons of England and of other licensing bodies is given during the Winter and Summer Sessions both at the University and at the Dental Hospital of Manchester adjoining the University The required general hospital practice is taken at the Manchester Royal Infirmary Women students are admitted to the classes in the Dental Department and for them common rooms are provided The composition fee for candidates for the University degree of Bachelor of Dental Surgery is 60 guineas payable in two equal instalments at the beginning of the first and third years of studentship The composition fee for candidates for the University Diploma in Dentistry is 55 guineas payable in two equal instalments at the beginning of the first and third years of studentship The composition fee for candidates for the L.D S of England is 60 guineas payable in two equal instalments at the beginning of the first and third years of studentship Students who have already served their apprenticeship with a private practitioner and who propose to complete the final portion of their attendance at the University and at an approved dental hospital will be required to pay the composition fee in two equal instalments at the commencement of the first and second years of studentship The composition fee does not include the hospital fees the examination fees, the fee for the conferment of the degree or the diploma the registration fee nor the fees for chemicals and chemical apparatus

The Queen's University of Ireland—This University grants the degrees of Bachelor of Dental Surgery and a degree of Master of Dental Surgery A student may not be admitted to the Degree of Bachelor of Dental Surgery unless a period of not less than four years shall have elapsed from the date of his matriculation, during which period he must have pursued an approved course of study of not less than nine terms For the degree of Bachelor of Dental Surgery candidates must pass four examinations, the first two being the same as those for the first and second examination in Medicine The subjects of the third examination are Dental and Practical Pathology Dental Surgery and Dental Medicine, the subjects of the fourth being Dental Surgery and Pathology, Dental Mechanics Operative Dentistry, Orthodontia, and Dental Materia Medica. A candidate for the degree of B D S must produce evidence of apprenticeship to a registered dentist for a period of two years A portion of or the entire period may be served before commencing study for the degree of B D S but no portion so taken prior to commencement of study shall count as part of the four years of Dental Study The degree of Master of Dental Surgery will not be granted until three years after the B D S has been obtained

TEACHING INSTITUTIONS IN DENTISTRY

See also under Universities of Birmingham Leeds Liverpool, and Manchester above.

LONDON

Royal Dental Hospital of London School of Dental Surgery Leicester square—A school of the University of London and women are now admitted as students and are eligible for all hospital appointments and school prizes.—The school provides the special dental education required by the Royal College of Surgeons for the Licence in Dental Surgery The general part of the curriculum may be taken at any general hospital The hospital is open from 9 A M to 5 P M there being one staff for the morning and another for the afternoon of each day Pupils are received for the training in dental mechanics recognised by the curriculum The demonstrators at the commencement of each session give a course of lectures on Operative Dental Surgery The six house surgeoncies are held for six months each and are open to all qualified students The lecturers in addition to their lectures give special demonstrations on the Microscopy of Dental Anatomy and Dental Surgery The lecturer on Dental Mechanics also gives practical demonstrations in the laboratory There are two Entrance Scholarships in Chemistry and Physics of the value of £50 and £25 respectively One Entrance Scholarship in Dental Mechanics and Metallurgy value £25 open to pupils of the Hospital only One Entrance Scholarship of £25 in Dental Mechanics, open to pupils of private practitioners The Saunders Scholarship of £20 awarded to second year students The Storer Bennett Research Scholarship for Scientific Research in any branch of Dental Surgery value £50 is awarded triennially The Alfred Woodhouse Scholarship of £35 and the Robert Woodhouse Prize of £10 for Practical Dental Surgery Prizes and certificates are awarded by the lecturers for the best examinations in the subjects of their respective courses at the end of the summer and winter sessions Consulting Physician Sir Richard Douglas Powell, Bart Consulting Surgeon Sir Frederick Treves Bart Consulting Dental Surgeon Mr C S Tomes F R S Dental Surgeons Mr J F Colyer Mr W H Dolamore Mr J G Turner Mr N G Bennett Mr D P Gabell Mr P McKay, and Mr W W James Assistant Dental Surgeons Mr F Coleman Mr Landon Whitehouse, Mr F St J Steadman Mr H Sobie and Mr E F Ackery Anæsthetists Dr Dudley Buxton and Mr H Hilliard Assistant Anæsthetists Mr F Trewby and Mr C Loosely Demonstrators Mr A T Pitts, Mr P M Fickling Mr J F Gow Mr B Grellier and Mr E L Fickling Lecturers—Dental Anatomy and Physiology (Human and Comparative) Dr Marett Tims Dental Surgery and Pathology Mr J G Turner Operative Dental Surgery Mr W W James Dental Mechanics Mr D P Gabell Metallurgy in its application to Dental Purposes Mr P A Ellis Richards Dental Bacteriology Dr W J Penfold Dental Materia Medica Mr F Coleman Chemistry Mr P A Ellis Richards Physics Mr John A Carpenter Anæsthetics Dr Dudley Buxton Fee for two years hospital

practice required by the curriculum, including lectures, £53 3s in one payment or £55 13s, in two yearly instalments The curriculum requires two years to be passed at a General Hospital, the fee for this is about £60 Both hospitals can be attended simultaneously For the lectures in Chemistry and Physics for the Preliminary Science Examination £10 10s The fee for the instruction in Dental Mechanics and the two years' hospital practice required by the curriculum is £150 if paid in one instalment, or 150 guineas if paid in three equal instalments The fee for tuition in Dental Mechanics is 50 guineas per annum, for one year s hospital practice £21 The Dean attends at the hospital every Thursday morning from 9 45 to 11 o clock, or he can be seen at other times by appointment The Winter Session opens on Oct 2nd

National Dental Hospital and College University College Hospital Dental School—Corner of Great Portland and Devonshire streets, W—Students are entered as students of University College Hospital and, as such, attend the classes of Chemistry, Physics, Anatomy, and Physiology in University College, which is a few minutes' walk from the Dental Department in Great Portland street, hitherto known as the National Dental Hospital Dental Surgeons Mr H R Pring, Mr A E Relph, Mr H Creemer Cooper, and Mr F R Smyth Assistant Dental Surgeons Mr Arthur E Ironside and Mr F E Sprawson Anæsthetists Mr C J Ogle, Dr J Maughan, Mr P H Parsons, Mr R E Delbruck, and Mr H M Pinto Leite Lecturers—Dental Anatomy and Physiology Dr J W Pare Dental Mechanics Mr S Holloway Olver Operative Dental Surgery Mr A. E Relph Dental Materia Medica Mr F R Smyth Dental Histology Mr A. T Barritt Dental Surgery and Pathology Mr H J Relph Bacteriology of the Mouth Mr K W Goadby Practical courses to comply with the R C S curriculum are also held Clinical Lectures and Demonstrations are given, and each student on entering passes through a preliminary course under a demonstrator Two Entrance Exhibitions, of the value of £40 and £20, are open for competition Prizes are open for competition at the end of each course of lectures Fee for the full curriculum of four years, in all subjects required by the Royal College of Surgeons, 180 guineas, or in four instalments of 62, 41, 41, 41 guineas A composition fee for medical men has been arranged covering the Two Years' Mechanical Work, Hospital Practice and Lectures required by the curriculum of the Royal College of Surgeons amounting to 120 guineas Hospital Practice to registered practitioners by special permission of Committee, 12 months, £15 15s The Calendar, containing full information as to Lectures, Fees, Prizes, and Subjects for the Entrance Exhibitions, value £40 and £20 each Session, may be had on application to the Dean, who attends the Hospital on Tuesday mornings at 10 30

Guy s Hospital—The work of the Dental Department begins daily at 9 A M both in the extraction rooms and in the conservation room The Extraction Rooms A new Dental Out patient Department has been provided There is ample accommodation for ordinary extractions and anæsthetic extractions together with waiting- and retiring rooms Patients are admitted between 8 45 and 9 30 A M, and are seen by the dental surgeon for the day, the dental house surgeon, the assistant dental house surgeon, and the dressers The Conservation Room is open from 9 A M till 5 P M It has recently been entirely remodelled and greatly enlarged, giving a floor space of over 6000 square feet It affords accommodation for about 100 dental chairs with the necessary equipment of the most modern type, for the use of the Dressers, who under the supervision of the Staff, perform the various operations of Dental Surgery The members of the staff attend every morning and afternoon to give demonstrations and otherwise assist students in their work in the Conservation Room and Mechanical Laboratory The Probationers Laboratory is supervised by two of the staff demonstrators, and instruction is given in operative dentistry on a "mannikin" to students during their first three months of study Pupils in Dental Mechanics are received, and a graded, systematic, and full course of instruction extending over two years, is carried out Dental students have the opportunity of attending at this hospital the whole course of instruction required by the examining board for the L D S Eng—viz, two years pupilage in dental mechanics, the special lectures and practice of the Dental Department, and the general lectures and practice of Medical School The fees for these two courses be paid separately or together, or they may be comb with the fees required to be paid for the course f medical diploma Students who enter for a medical as as a dental diploma are allowed to pursue their s of Dentistry during any period of their medical course convenient to themselves without further charge Entrance Scholarships in Dental Mechanics of the valu £20 each are offered for competition annually, tw September and two in April, and prizes of the aggre value of £47 are awarded for general proficiency and skill in Practical Dentistry A Dental Travelling Scho ship of the value of £100 is awarded every second y Dental students are eligible for admission to the D dential College and enjoy the privileges of students in Medical School Staff.—Consulting Dental Surgeons F Newland Pedley and Mr W A. Maggs Dental Surgeo Mr Wynne Rouw, Mr H L Pillin, Mr M F Hop and Mr J B Parfitt Assistant Dental Surgeons Mr Lewin Payne, Mr E B Dowsett Mr F J Pearce, Mr H C Malleson Demonstrators of Practical Dentist Mr F N Doubleday Mr G B Pritchard, Mr W Stranack, Mr L D Wright, and Mr L Price Har Demonstrator of Orthodontic Dentistry Mr F Bocquet B Demonstrators of Prosthetic Dentistry Mr H L Messen and Mr E A Tomes Anæsthetists Mr C J Ogle, F E Shipway, Mr H M Page and Mr A J McN Lecturers—Dental Anatomy and Physiology Mr Hops Dental Surgery and Pathology Mr Wynne Rouw Ope tive Dental Surgery Mr Parfitt Dental Mechani Mr Payne Practical Dental Mechanics Mr Pillin Den Bacteriology Dr Eyre Dental Microscopy Mr Dowsett a Mr G Marshall Metallurgy Professor T M Lowry Pr tical Dental Metallurgy Mr Pearce Resident Den Officer Mr F Bocquet Bull Curator of Dental Museu Mr Dowsett Dean, Mr L Bromley For Lectures on t general subjects of Dental Curriculum *vide* Guy s Medic School

London Hospital—This school is a part of the London Ho pital and Medical College, and is fully equipped on the mo modern lines and with the latest appliances It provides complete curriculum in all subjects for the L D S Diplom and is admirably adapted for the purpose of teaching Th Conservation Room is well lighted and ventilated and fitte with pump chairs of the latest pattern, the fountain spittoo at every chair has been specially designed and has attache to it a saliva ejector, hot and cold water, compressed ai gas and electric current also a swing bracket to carry th students cabinet Electric sterilisers are supplied in eac department and motor engines where required. The Schoo possesses in addition to the Theatres Laboratories an Museums in the College a special Museum of Denta Anatomy and Surgery, Operative Dentistry, Prosthetic an Extraction Rooms, and Laboratories for Practical Denta Metallurgy and Dental Prosthesis A systematic course o instruction in Dental Prosthesis is arranged for pupils The up to-date Laboratory contains every modern apparatus and is in charge of a skilled curator and his assistants Con nected with the Medical College and Dental School are a Library, Athenæum, Clubs' Union Dining Hall with moderate tariff, Students' Hostel, and an Athletic Ground. Lecturers—Chemistry and Dental Metallurgy Hugh Candy B A B Sc Physics A H Fison, D Sc Human Anatomy Professor William Wright Physiology Professor E P Cathcart Dental Surgery and Pathology Sir Francis Farmer Operative Dental Surgery Dr George Northcroft. Dental Prosthesis Mr Wilton Thew Operative Dental Prosthesis Dr G Paton Pollitt. Odonto-phosopic Orthopædics Dr Harold Chapman Dental Anatomy Professor William Wright Dental Microscopy Mr Evelyn Sprawson Dental Bacteriology Professor William Bulloch, F R S Dental Materia Medica Dr O Leyton and Mr F A Hocking, B Sc Lond Dental Anæsthetics Dr R. J Probyn Williams For full particulars as to fees and course of study advised apply to the Dean (Professor William Wright M B, D Sc, F R C S) who will be glad to make arrangements for anyone wishing to see the Dental School and Medical College

London (Royal Free Hospital) School of Medicine for Women—Full courses are arranged for women students for the study of dentistry, and in preparation for the Licence in Dental

Surgery of the Royal College of Surgeons of England, at the London (Royal Free Hospital) School of Medicine for Women in conjunction with the London Dental Hospital Leicester Square and the National Dental Hospital Great Portland street W The course is arranged as follows First and second years Chemistry Physics and Dental Mechanics Third fourth and fifth years Anatomy Physiology and Special Dental Courses Courses in Medicine and Surgery, General Hospital Course, Dental Hospital Course The combined fees at the London School of Medicine for Women and the National Dental Hospital are £180 if paid in one sum on beginning the course, or £191 if paid in three annual instalments Bursary The Council of the School will award annually (until further notice) an Agnes Guthrie" Bursary of the value of £60 to a student fulfilling the required conditions who enters for the full dental course Candidates are required to send in applications on or before July 15th to the secretary and warden, from whom a prospectus of the School and all particulars can be obtained

---

PROVINCIAL.

Birmingham Dental Hospital —The Dental Hospital was founded in 1858 and was recognised by the Royal College of Surgeons in 1880 for the teaching of Dental Students Having an annual attendance of about 16 000 patients it affords every advantage for students about to enter the profession to acquire a thorough practical knowledge, as required by the Medical Council. The present Hospital was opened on July 6 h 1905 It has accommodation for 50 students The equipment is in accordance with the most modern requirements for the efficient teaching and practice of Dental Surgery The operations performed annually average 35,000 including 5000 gold and other fillings and many cases of crowns bridges, porcelain inlays, and regulations By arrangements with the Birmingham University and with the General and Queen s Hospitals the entire course of Lectures Hospital Practice &c. may be completed for an inclusive fee of £96 15s, or including Mechanical Pupilage £186 The instruments and materials necessary for Hospital Practice cost about £28 The Composition Fee for the courses required for the L D S of the University or any of the Corporations alone, is £60, payable in two annual instalments at the commencement of the first and second years, that for the courses required for the L D S and the Degree in Dentistry of the University is £75, that for the L D S in combination with the M R C S and L R C P is £85, and that for the M B Ch.B and B D S is £95 All of these composition fees are payable in two annual instalments at the commencement of the first and second years Each of these fees covers the cost of the courses given at the University for the qualifications indicated but does not include fees for Hospital teaching For two years dental hospital practice the fee is 20 guineas payable in two instalments of 10 guineas each at the commencement of the first and second (hospital) years respectively For two years mechanical pupilage 85 guineas which may be paid in two annual instalments of 50 and 35 guineas respectively, mechanical pupils may join for a probationary period of one month, fee 5 guineas which is deducted upon payment of the full amount For general surgical hospital practice lectures and demonstrations Surgery two winters £10 10s One Entrance Scholarship is offered annually of the value of £37 10s It is awarded to the student who entering for the Dental Degree of the University in October or having entered not earlier than the previous April shall pass the best examination in the subjects studied during his apprenticeship Candidates must be under the age of 21 years Application for admission together with a certificate of birth must be sent to the Dean of the Medical Faculty on or before Oct 15th Staff —Dean Mr W Thompson Madin Consulting Physician (Vacant) Consulting Surgeon Mr Haslam Consulting Dental Surgeon Mr Frank E Huxley Honorary Dental Surgeons Mr F W Richards Mr F H Goffe Mr A E Donagan Mr J Mountford Mr W T Madin Mr J E Parrott Mr W M Knott and Mr G F Cale Matthews Honorary Assistant Dental Surgeons Mr A H Parrott Mr C H Hawkins Mr S H Roe Mr A W Wellings Mr W Howarth and Mr Harold Round Honorary Orthodontic Officer Mr G F Cale Matthews Anæsthetists Dr S W Haynes Dr W J McCardie, Mr R H Pollinson Whitaker Dr R W Taylor Haddow, Mr L Kirkby Thomas, Dr Hartly Burn and Dr D Buchan Demonstrators Dr Humphrey F Humphreys, Mr N A Austin and Dr R A Broderick. Stipendiary Dental Surgeon Mr C W Randall House Surgeons Mr R L Booth and Mr L Williams Prosthetic Department Mr W M Knott and Mr S H Roe

Leeds Public Dispensary —The Dental Department of the Leeds Public Dispensary is fully equipped with every modern appliance to provide training for Dental Students, and affords every opportunity for the student to prepare for any of the Dental Degrees or Diplomas The Demonstrator of Operative Dental Surgery instructs students during their probationary course. At the completion of this training students have patients allotted to them by the Demonstrator, and have every opportunity of acquiring knowledge from the members of the Staff, two of whom are in attendance each day The following prizes are awarded —First year Students value 2 guineas Operative Dental Surgery Prize value 5 guineas Two prizes in Prosthetic Dentistry (*a*) a prize, value 2 guineas for first year pupils, (*b*) a prize value 5 guineas, open for competition to all Students Extraction prize, value 2 guineas open for competition to all Students A prize in Orthodontics, value 5 guineas, is open to all students Dental Staff —Consulting Dental Surgeon Mr Frederick Sherburn Dental Surgeons Mr Percival T Leigh, Mr Walter Marston Mr A. G G Plumley, Mr Stephen D Hey Mr David Saville and Mr J Newsome Taylor Assistant Dental Surgeons Mr James W Mawer, Mr Geoffrey A. Phillips, Mr J K. Crawford, Mr W S Thorburn, Mr Harold R Bentley and Mr Sidney H Hole Anæsthetists Dr F Whalley and Mr E Wrigley Braithwaite. Demonstrator and Tutor Mr C H Child Curator of Dental Museum Dr A. G G Plumley House Surgeon Mr E. A Rogerson Instructor of Dental Mechanics Mr C E Foster Warden Mr Stephen D Hey, to whom all communications should be addressed

Dental Hospital of Manchester —This Hospital is in association for teaching purposes with the University of Manchester and the Royal Infirmary, and is in the centre of a very large population. Courses of study are provided to meet the requirements of the various examining bodies, including those of the University of Manchester for the qualifications L.D S and B D S and the L D S of the Royal College of Surgeons of England Clinical instruction is given by the members of the staff and by the house surgeons and demonstrators, and also by the honorary anæsthetists in the administration of nitrous oxide gas, a special class in anæsthetics is conducted by the clinical tutor in that subject

A Travelling Scholarship, value £100 will be awarded from time to time Ten prizes, varying in value from £2 to £8 are awarded annually

For the whole course of hospital instruction for the L D S (including two years mechanical training) the fee is £100 or if paid in instalments £105 For the two years Operative Course only £21 or if paid in two instalments, 21 guineas For the whole course of hospital instruction for the B D S degree (including mechanical training) £130 or if paid in instalments 130 guineas Additional practice in Dental Mechanics may be taken by pupils who have already received their mechanical training elsewhere, at a fee of £20 for six months

Women students are admitted to the practice of the hospital Staff —Consulting Physician Dr J J Cox. Consulting Surgeon Mr J Howson Ray Consulting Dental Surgeons Mr I Renshaw, Mr Thomas Tanner Mr W Dykes and Mr W Simms Dental Surgeons Mr G G Campion, Mr J W Dunkerley Mr J W Gibbons, Mr D Headridge Mr R Howard Mr P A. Linnell Mr J Hilditch Mathews, Mr H W Norman Dr C H Preston Mr T E Sherratt Mr J Stephenson Mr G O Whittaker Mr S S Doran Mr T Dykes Mr Felix Rawsthorne Dr H Simms and Mr B J Rodway Anæsthetists Mr A. Wilson Mr S R Wilson Mr E Moir and Dr W Wilson Prosthetic Dental Surgeons Mr J Stephenson and Mr B J Rodway Clinical Tutor in Anæsthetics Mr S R Wilson Demonstrator in Operative Dental Surgery Mr H V Brown Demonstrator in Orthodontics (Vacant) Demonstrator in Dental Prosthetics Mr E. V Pollit Instructor in Dental Mechanics Mr H W Fillan Tutor Dr C H Preston Curator of Museum Dr C H Preston

Copies of the Prospectus will be forwarded on application to Mr J Hilditch Mathews Dean

Newcastle upon Tyne Dental Hospital and School—This Hospital is centrally situated (within five minutes of the various colleges, infirmary, and railway station), the rooms are well lighted and thoroughly equipped for carrying on the work Dental surgeons and an anæsthetist attend each morning A tutorial dental surgeon is also in attendance The Composition Fee for the special Dental Lectures and Dental Hospital Practice is £45 3s if paid in one sum, or £46 4s if paid in two instalments of £23 2s The Composition Fee for the Lectures at the Colleges of Medicine and Science is 49 guineas; in addition to this there is a library and an athletic fee Particulars of the fee for General Hospital Practice may be obtained from the Senior House Physician, Royal Victoria Infirmary, Newcastle-upon Tyne Medals and Certificates of Merit are granted to students showing certain standards of proficiency in the various classes at the Dental School Lecturers—Dental Anatomy and Physiology Mr E Y Richardson Dental Surgery and Pathology Mr J Coltman Operative Dental Surgery Mr T R D Walkinshaw Dental Histology Mr C L Routledge Dental Mechanics Mr J W Daniels Dental Materia Medica Mr J Bolam Dental Metallurgy Mr. C Lotinga Orthodontia Mr A Jameson Dental Anæsthetics Dr W E Alderson The prospectus of the Dental Hospital and School, containing full information, may be obtained from either Mr J T Jameson, 12, Windsor crescent, Newcastle upon Tyne, Dean, or Mr James Coltman, 13, Ellison place, Newcastle upon Tyne, Vice Dean

University of Sheffield—Specially and beautifully fitted rooms have been provided for the Dental Lectures in the medical block Dental students are able to take full advantage of the teaching of the various departments of the University concerned in their special teaching A course of Practical Demonstrations in Dental Histology and Pathology has been added Composition Fee for the Lectures, £30 The Dental School forms part of the University of Sheffield Professors and Lecturers—Dental Metallurgy Mr F K Knowles and Mr F Ibbotson Dental Mechanics Mr H James Morris Dental Anatomy and Physiology Mr W J Law Dental Surgery and Pathology Mr F G Mordaunt Dental Histology Mr W J Law Dental Bacteriology Professor J S C Douglas and Dr H G M Henry Dental Materia Medica Mr P S Stokes

Sheffield Royal Hospital—The Dental Hospital forms part of the General Hospital The department has a fully equipped Mechanical Laboratory, with an Instructor in daily attendance, where pupils receive the two years' instruction in Mechanical Dentistry required by the curriculum Two additional Dental Anæsthetists have been appointed, and the whole department has been reorganised and fitted with electric motors, &c Fee for Dental Hospital practice, £21. Honorary Dental Surgeons Mr F G Mordaunt, Mr Percy S Stokes and Mr H J Stoner Honorary Assistant Dental Surgeons Mr R C Webster, Mr J H Skerritt, Mr W Skerritt, and Mr F W Goodwin Further particulars with regard to the Dental, Medical, and Surgical studies may be obtained from the Calendar of the University or from the Dean of the Medical Faculty

Devon and Exeter Dental Hospital, 24 Southernhay, West, Exeter—Established 1880—The hospital is open daily (Sundays excepted) and patients are admitted between the hours of 9 and 11 A M Students attending the practice of the hospital must consider themselves strictly under the control of the medical officers and must not undertake any operation without the consent of the dental surgeon for the day Honorary treasurer Mr J M Ackland, secretary, Mr W Alfred Hooker, A L A A.

SCOTLAND

The Incorporated Edinburgh Dental Hospital and School—The Edinburgh Dental Hospital and School is located in a spacious and well equipped building at 31, Chambers-street and offers special advantages to dental students The General Courses required for the Dental Diploma may be taken in the Medical School of the Royal Colleges of Physicians and Surgeons or in the University schools The hospital attendance and clinical instruction are taken at the Royal Infirmary The University Medical Schools, and Royal Infirmary are within three minutes' walk of the Dental Hospital The special courses are taken in the hospital The Dental Hospital practice, extending over two years, affords a student ample opportunity to a full acquaintance with every branch of dentistry The hospital admits a limited number of indentured pupils They receive their instruction in Mechanical Dentistry concurrently with the general and special courses premium of 60 guineas is payable with each stu pupil The practice and lectures of the hospital a recognised by, and qualify for, all the Licensing Board The cost of the hospital outfit of instruments included in the Dental Hospital fee of £31 10s The minimum cost of classes and Diploma for the whole cour of dental instruction amounts to £90 7s Those studen who desire to take a Medical and Surgical Diplon in addition to the L D S have in this school admirab facilities for so doing The triple qualification of th Royal College of Physicians and Surgeons of Edinburgh ar the Royal Faculty of Physicians and Surgeons of Glasgo is recommended The minimum cost of Professional Educ tion, the Triple Qualification, and the Licence in Dent Surgery amounts to £189 7s Further particulars can b obtained from the Dean, Mr W Guy

Incorporated Glasgow Dental Hospital and Scho 158, Renfrew-street, and 16, Dalhousie street, Garnethill Glasgow—The winter session will begin in October, an the lectures will be delivered as follows In Dent Mechanics on Tuesday and Thursday at 7 P M, by Dr Hug McKay, and in Dental Metallurgy on Monday and Wednesda at 7, by Mr W Bruce Hepburn, L D S Fee for each o the above courses of lectures, £3 3s Lectures will als be delivered on the following subjects Dental Surgery by Mr J Mason Noble, Dental Anatomy and Physio logy, by Dr Fred M Murray, Dental Pathology, an Bacteriology, by Mr J F Webster, Anæsthetics, b Dr R Home Henderson, Operative Technique, by Mr Adam Gubie The lectures and instruction at th Glasgow Dental Hospital and School are recognised b all the licensing bodies in the United Kingdom Th fees for two years' hospital practice are £15 15s Th hospital is opened daily from 5 to 7 P M (Saturdays excepted) Students may only enrol during the months o April or October Summer session begins in April. Winte session begins in October

Glasgow Royal Infirmary (Dental Department).—Mr W. Taylor attends at the Royal Infirmary at 9 A M on Mondays, Wednesdays, and Fridays, and gives a course of instruction in Dental Surgery on these days. The following course in the curriculum can be taken at St. Mungo's College Anatomy, six months, Practical Anatomy, nine months, Physiology, six months, Chemistry, six months, Practical Chemistry with Metallurgy three months, Surgery, six months; Medicine six months, Materia Medica, three months, Clinical Surgery, six months; Dental Surgery, six months, and attendance for two years on the dental department of the hospital. The attendance on the Dental Clinic is free to students of the hospital.

IRELAND

Incorporated Dental Hospital of Ireland—Lincoln place, Dublin—All Dental Students who have passed their First Dental Examination in the Royal College of Surgeons in Ireland (or an equivalent examination or examinations) are admissible to the Clinical Instruction of the Hospital, after paying fees and subscribing to the conditions prescribed by the staff In addition to Clinical Instruction and Special Demonstrations courses of lectures are given at the hospital on Dental Surgery and Pathology, Mechanical Dentistry, the Administration of Anæsthetics Orthodontia, Dental Anatomy and Dental Materia Medica Practical instruction is also given in Anæsthetics In addition to the longer courses of hospital attendance, courses of three months' duration will be given to surgeons intending to practise in the Colonies or remote country districts or in the Army and Navy

Fees—Dental Hospital Practice (each year) £12 12s, Lectures £6 6s, Composition Fee, £15 15s per annum In addition to the above courses registered dentists who are members of the British Dental Association will usually be permitted to take out a three months course for a fee of 6 guineas The course in practical Dental Mechanics can be taken in the Hospital Laboratory Further particulars can be obtained from the Dean, Mr George Sheppard, F R C S I, L D S Eng

The War.

THE CASUALTY LIST

THE following names of medical officers appear among the casualties announced since our last issue —

Killed

Captain J O Brien, R A M C, attached to the Royal Field Artillery

Captain H K Birley, Manchester Regiment, was educated at Owens College, Manchester and qualified in 1895 After holding appointments at the Manchester Cancer Hospital and at the Chorley Dispensary and Rawcliffe Hospital he commenced practice at Irlams-o' th' Height and was Assistant County Director of the British Red Cross Society at Pendleton On the outbreak of war he was given a combatant commission in the Manchester Regiment, and went to the front in November last

Died of Wounds

Captain G Stanton R A M C, attached to the Lancashire Fusiliers, was educated at Trinity College Dublin and qualified in 1915

Captain G H Wood, New Zealand Medical Corps, was educated at Durham University, qualifying in 1909 After holding appointments at the Royal Victoria Infirmary, Newcastle-on-Tyne, he practised in New Zealand, and subsequently joined the New Zealand Expeditionary Force

Captain J P Walsh, Canadian A.M C, attached to the Canadian Infantry

Died

Major T G Brodie F R S Canadian Army Medical Corps, was educated at King s College London and qualified in 1890 He was formerly professor superintendent of the Brown Institute University of London and at the time of his death was professor of physiology at the University of Toronto, Canada

Captain R I Binning Indian Medical Service qualified M.B Ch B Glasg in 1907, and subsequently held appointments at the Western Infirmary and at the Royal Infirmary Glasgow

Major N E J Harding R A.M C qualified M B, Ch B Edin in 1900 and was formerly civil surgeon to the South African Field Force At the time of his death he was in command of the 22nd Stationary Hospital Bombay

Wounded

Lieutenant P R Boswell, R A M C
Lieutenant W E Dimond R.A M C.
Captain M Gross R A.M C
Captain E. S B Hamilton R.A M C
Lieutenant T H James R A.M C
Captain F P Kerr D S O R A M C attached to the Liverpool Regiment
Captain R J B Madden R A M C
Captain B C Marbury, R A M C
Captain T M Newton R A M C
Captain A W Raymond, R.A M C
Lieutenant J MacM Watson R A M C
Captain W L R Wood R A M C attached to the Army Service Corps
Captain J Fraser, R A M C
Captain S B Faulkner R A M C
Captain N G Chavasse R A M C attached to the Liverpool Regiment
Captain E D Gardner R A M C attached to the Royal Scots.
Lieutenant J H C Gatchell R A M C attached to the Royal Lancaster Regiment
Captain H H Robinson, R A M C attached to the Liverpool Regiment
Captain O Teichmann R A M C attached to the Yeomanry
Captain C O Donovan R A M C attached to the Royal North Lancashire Regiment
Captain F J O King R A M C attached to the Royal Fusiliers
Captain P Thornton R A M C attached to the Royal Fusiliers
Major F Worthington D S O R A M C
Captain H B Day R A M C attached to the Royal Welsh Fusiliers.
Captain A M Trotter New Zealand Medical Corps
Lieutenant W J Knight R A M C

Previously reported Believed to be Prisoners at Kut el Amara now reported Prisoners

Major F Lennett I A M C
Captain T I Osmond R A M C
Lieutenant I F O Donoghue Indian Subordinate Medical Department
Lieutenant W C Speckman, Indian Medical Service

DEATHS AMONG THE SONS OF MEDICAL MEN

The following sons of medical men must be added to our lists of those who have fallen during the war —

Second Lieutenant F W Long R F A, elder son of the late Dr F T Long, Greenodd Lancs

Lieutenant L T Seymour York and Lancaster Regiment, second son of Dr L W Seymour, of Woodstock road, Oxford

Second Lieutenant C B Bass, 10th Yorkshire Regiment, elder son of the late C W Bass, M R C S

THE HONOURS LIST

The King has conferred the honours mentioned upon the following medical officers in recognition of their gallantry and devotion to duty in the field —

Distinguished Service Order

Temporary Captain Edward Carwardine Gimson, R A M C
For conspicuous gallantry when continually attending to the wounded under very heavy shell fire He has displayed the greatest devotion to duty and contempt of personal danger

Temporary Captain Penrose Lanyon Watkin Williams, R A M C
For conspicuous gallantry when tending the wounded for six hours in a shell crater under very heavy shell fire He was twice knocked over by the explosion of shells and his coat and puttees were ripped by shrapnel

Military Cross

Temporary Lieutenant George Perry Armstrong R A M C
For conspicuous gallantry and devotion to duty when tending the wounded in the open under heavy fire and getting them back to our own lines

Temporary Lieutenant Frank Russell Hassard, R A.M C
For conspicuous gallantry and devotion to duty when collecting the wounded under shell, machine-gun, and sniper fire

Temporary Captain Hubert Arnold Pallant R A M C
For conspicuous gallantry and devotion to duty when attending to the wounded under heavy fire Later he voluntarily acted as stretcher bearer and helped to carry off nearly 40 wounded under heavy shell and machine-gun fire

Temporary Lieutenant Valentine Frederick Stock, R A.M C
For conspicuous gallantry and devotion to duty After being rendered unconscious by shell explosion he insisted on returning to duty and for several days carried out his duties by daylight and exposed to heavy fire

Temporary Lieutenant Gordon Blanchard Wiswell, R.A M C
For conspicuous gallantry and devotion to duty when attending to the wounded and directing stretcher bearers under shell and machine-gun fire without a step or rest for three days and nights

Captain Clarence Woods Johnston, Canadian A M C.
For conspicuous bravery and devotion to duty He went forward to establish a new dressing station under terrific fire and worked continuously for three days making many trips backwards and forwards with complete success in regard to the evacuation of his wounded

Captain William Jonas McAlister Canadian A M C
For gallantry and devotion to duty in attending wounded under very heavy shell fire Though blown up and badly shaken he continued his work which at all times has been splendid.

Captain John Bruce McGregor, Canadian A M C
For gallantry and devotion to duty during a period of great stress. Under great difficulties he cleared all his casualties and on occasions carried out his duties under very heavy fire quite regardless of personal danger

Captain Albert Ross Canadian A M C
For conspicuous courage and devotion in the performance of his duties After all dug-outs had been blown in he continued to dress and attend to the wounded in open trenches or wherever necessity existed

Captain Frederick James Tees Canadian A M C
For bravery and fearless devotion to duty under heavy shell and machine gun fire Captain Tees led his bearers in exposed situations with great gallantry and successfully evacuated all his wounded

Captain Herbert William Wadge Canadian A M C
For conspicuous bravery and devotion to duty when in charge of an advanced dressing station Under intense bombardment he continued to dress and evacuate wounded for four hours Later under conditions of extreme danger and difficulty he succeeded in evacuating all his wounded

The names of Temporary Captain H A Pallant and of Temporary Lieutenants F R Hassard, V F Stock and C B Wiswell all of the R A.M C appeared in the Honours List in THE LANCET of August 5th 1916 p 253 and are repeated above with a statement of the specific acts for which the honours have been bestowed

The following promotions and appointments of medical men in connexion with the operations in Mesopotamia are announced —

C M G —Lt Col H C Maudsley Australian Army Medical Corps

Military Cross —Capt J A Cruickshank I.M.S, Capt. G Wilson R.A M C

Correspondence.

"Audi alteram partem

VOLUNTARY HOSPITALS AND THE SPIRIT DUTY

To the Editor of THE LANCET

SIR,—The House of Commons has voted £10 000 as an annual grant to be made to Voluntary Hospitals by way of affording relief in respect of duty paid on rectified spirit used for medical and surgical purposes It is anticipated that the distribution of this sum will be based on the scheme recommended by the Treasury Committee appointed by the Chancellor of the Exchequer to deal with the matter This grant will go a long way indeed towards meeting the burden of the very heavy duty payable on spirit used in hospitals for pharmaceutical purposes

Many attempts have been made from time to time to obtain some relief, but invariably without success, until Mr W Clive Bridgeman, M P, one of the Lords of the Treasury and treasurer of the Florence Nightingale Hospital took the matter up in March, 1915, when Unionist Whip, by bringing the matter to the notice of Mr Lloyd George On becoming a member of the Coalition Government Mr Bridgeman secured the sympathetic action of Mr McKenna, whose proposals, however, met with opposition from unexpected quarters The British Medical Association and the Pharmaceutical Society very strongly objected to Mr McKenna's proposals for reasons which were difficult to understand and which were founded on mistaken and incomplete knowledge of the question at issue Mr Bridgeman, with splendid persistence and tenacity, continued his efforts and eventually secured the appointment of a committee charged with the duty of devising a scheme, this committee presented its report a few weeks ago, and the result is as stated above It is bare justice to Mr Bridgeman to state that this excellent result is due entirely to his initiative and to his continuous efforts, in spite of great difficulties, to achieve his object The thanks of hospital authorities are also due to THE LANCET for its powerful support of Mr Bridgeman's proposals contained in the two leading articles in its July issues of 1915

The machinery for administering the grant will doubtless be set up by the authorities very shortly

I am, Sir, yours faithfully,

F A HOCKING,

August 18th 1916 *Pharmaceutist, London Hospital* E

Medical News.

THE MESOPOTAMIA INQUIRY—The first sitting of the Commission to inquire into the operations in Mesopotamia was held on August 21st at the House of Lords, when the evidence of Sir Edmund Barrow, Military Secretary to the India Office, was taken The Commissioners decided that the meetings of the Commission be conducted in private

THE INDIAN MEDICAL SERVICE—It was recently announced in the press that after the open competitive examination held last July for admission to the Indian Medical Service no similar examination would be held during the continuance of the war but that such appointments as might be required to meet the absolutely indispensable needs of the service would be made by nomination by the Secretary of State To assist him in making these appointments, which, as already announced, will be limited in number to the absolutely indispensable needs of the service, Mr Chamberlain has appointed a selection committee, who will summon and interview such applicants as may appear to be *prima facie* suitable and make recommendations for appointment Applications for appointment should be addressed to the Secretary of the Military Department, India Office Whitehall, S W, and should contain concise particulars of the applicant's medical degrees and career Applicants must be over 21 and under 32 years of age at the time of application Particulars regarding pay, promotion &c in the service can be obtained from the Secretary, Military Department

METROPOLITAN ASYLUMS BOARD DIPLOMA IN PUBLIC HEALTH—A three months' course of lectures and demonstrations in hospital administration will be given at the undermentioned hospitals on the days and at the times stated below North Western Hospital, Hampstead, N W, Dr E W Goodall, Mondays and Fridays at 5 P M, beginning Monday, Oct 2nd, Grove Hospital, Tooting Graveney, S W, Dr J E Beggs, Mondays and Thursdays at 5 P M beginning Thursday, Oct 5th The fee for the course is £3 3s and is payable to Mr Duncombe Mann, clerk to the Metropolitan Asylums Board

WE regret to learn the sudden death in London of Dr Thomas Gregor Brodie, F R S, professor of physiology in the University of Toronto and formerly professor-superintendent of the Brown Institute

THE Wellcome Historical Medical Museum will be closed from Sept 1st to 30th inclusive for cleaning It will reopen in October with a loan exhibition illustrating the folk lore of London, including medical charms, amulets, and other objects found to have been used by the superstitious in connexion with the cure and prevention of disease

WE are informed that Dr Robert Armstrong Jones, superintendent of the London County Lunatic Asylum at Claybury, has retired from his position, which he has held with much distinction for the past 24 years The Claybury Lunatic Asylum was the first asylum opened by the London County Council, and was also the first establishment to try the care and treatment of private patients under municipal control

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS

The Autumn Recess

BOTH Houses of Parliament adjourned on Wednesday, August 23rd, for an autumn recess They reassemble on Oct 10th

HOUSE OF COMMONS

WEDNESDAY, AUGUST 16TH

Medical Examination of Recruits

Mr HARVEY asked the Financial Secretary to the War Office whether any detailed physical standard had been issued to the various Army medical boards to ensure that cases should be dealt with on uniform principles and, in particular, whether any instructions had been issued to secure a uniform method of dealing with organic diseases such as diseases of the heart—Mr FORSTER said in reply The physical standard is fixed for each of the categories, and this standard is determined by the nature of the duties assigned to the particular category Apart from this conferences are from time to time held to secure coördination between the work and practice of the different boards

Mr HARVEY asked whether the examination of recruits by the various Army medical boards was inspected from time to time by competent medical experts—Mr FORSTER Yes, sir, the Deputy Directors of Medical Service of the commands are responsible for inspecting from time to time the work of examining recruits

Invalided Officers from Mesopotamia

Captain ORMSBY GORE asked the Financial Secretary to the War Office whether he was aware that a number, about 20, of officers wounded or sick from Mesopotamia were invalided home to England on leave on medical certificate for limited periods of three or four months, leaving Bombay on a hospital ship on July 7th, 1916, were landed at Suez on July 18th, and were there informed that there would be no hospital ship to take them on from Egypt until August 20th, if then, whether these officers were kept at Alexandria in hospital until August 2nd, when they were informed that if they liked they could go by ordinary transport thence to Marseilles, and, on embarking on this transport, were compelled to sign a declaration certifying that, if a passage to England by transport was granted to them they would pay all expenses incurred en route, including, if landed at Marseilles, the fare through France, that they were travelling by transport at their own request and risk, that they would not in future prefer any claim whatsoever for the payment of any expenses incurred during the journey to England, and that they were aware that they were allowed to stay in Egypt and await passage to England by hospital ship, but that if they did so they must stay in hospital or convalescent home and adhere to the rules of that institution, whether he is aware that the transport on which they travelled on these conditions also carried

officers not sick or wounded, on ordinary leave from Egypt, who were given free warrants across France and were forced to pay no expenses why this differentiation was made against officers invalided from the Mesopotamian front, and whether, seeing that the period of leave dated from leaving Bombay and no proper arrangements were made for transportation for these sick and wounded officers beyond Suez, he would see that their leave was extended for the time they were detained in Egypt —Mr FORSTER answered The statements made in the first three parts of the question are, I am informed, substantially correct so far as the information in the possession of the War Office goes As regards the fourth and fifth parts of the question, I cannot at present say precisely why the authorities in Egypt made these officers sign the declaration referred to, but I may inform my honourable and gallant friend that the question of reimbursing the travelling expenses and also extending leave will be sympathetically considered I may add that it is impossible to provide hospital ships in Egypt to meet the Indian hospital ships, and that patients from India have to be transferred to hospitals in Egypt until they can come on There has been a shortage of hospital ships in the Mediterranean lately owing to the heavy requirements arising from the operations in France, but this has now been remedied

Health in Military Camps

Mr BENNETT GOLDNEY asked the Financial Secretary to the War Office whether the Government had again refused to deal with the dangers to health to which Canadian and other soldiers were exposed in the neighbouring towns to military camps, whether, as these dangers must continue so long as the Government would take no adequate steps by legislation to keep sick undesirable women under surveillance and control until they were cured, he would take steps to provide suitable and sufficient hospitals for the victims of our present neglect and with this end in view, whether he would ascertain to what the present delay in carrying out the necessary work at Elham was due —Mr FORSTER answered There has been no refusal to deal with the dangers mentioned The matter is receiving attention and my noble friend the Under Secretary of State has recently held a conference on the subject

Elham Hospital

Mr BENNETT GOLDNEY asked the Financial Secretary to the War Office whether he would take the necessary steps to accelerate the work which had been considered advisable to undertake in connexion with the conversion of the union at Elham into a hospital for sick Canadian soldiers, whether he was aware that although the Government had now taken over the whole of this block of buildings, which it was estimated could accommodate some five to six hundred patients, arrangements were only in progress for the reception of 200 whether his attention had been called to the position of the present tent hospital for such cases as it was contemplated to send to the Elham institution, whether he knew that the men were now in immediate proximity to the much frequented and dusty high road between Hythe and Folkestone and that the tents and the patients were visible to every passer by and whether he would take steps to provide more suitable accommodation either in the buildings or grounds at Elham —Mr FORSTER replied The building referred to has been allotted to the Canadian authorities and they are making their own arrangements The Army Council have no information regarding any work contemplated or already undertaken at this hospital, but I will make inquiries

Treatment of Venereal Diseases

Major ASTOR asked the President of the Local Government Board whether any and if so how many councils of counties and county boroughs had not yet submitted to the Board any scheme for providing diagnosis and treatment of venereal diseases based on the recommendations of the Royal Commission in their report dated Feb 11th 1916 and promised by him on behalf of the Government to a deputation of the National Council for Combating Venereal Diseases on April 14th 1916 —Mr LONG answered I am afraid that my honourable friend does not realise that it takes some time and consideration to evolve documents containing the technical and administrative details which the Department s order and circular comprise I am as anxious as he is that the scheme shall be set going, and I can assure him that there has been and will be, no avoidable delay

THURSDAY AUGUST 17TH

Supply of Cocaine to Dentists

Mr MCCALLUM SCOTT asked the Home Secretary whether if he was satisfied that novocaine was an effective substitute for cocaine he would make his restrictions with regard to the supply of cocaine apply equally to all dentists registered as well as unregistered —Mr H SAMUEL replied I see no grounds as at present advised, for applying the restrictions to practitioners duly registered under the Dentists Act I would point out also that if registered dentists were prevented from using cocaine the supply of novocaine for the unregistered would be made more difficult

Mr MCCALLUM SCOTT Is there any reason why restrictions should apply to unregistered and not to registered dentists?—Mr SAMUEL Yes, because registered dentists are persons who are registered to receive cocaine, and unregistered dentists are not registered Any person can call himself an unregistered dentist

Exemptions from Vaccination

Mr CHANCELLOR asked the President of the Local Government Board whether, in cases where exemption from vaccination was granted for a child to the mother in the absence of the father on service in the Army, the father remained liable to penalties on his return home —Mr LONG replied My department has sent a circular letter to all vaccination officers impressing on them that it is their duty to accept as valid declarations made by the mother of a child in the father's absence from home on naval or military service

Outbreak of Fever at Lettermore

Mr O'MALLEY asked the Chief Secretary to the Lord Lieutenant of Ireland whether his attention had been drawn to the outbreak of fever at Lettermore in the Oughterard Union, and whether he would authorise an inquiry to be held with a view to ascertaining and removing the cause or causes of the periodic outbreaks of fever in this district —Mr DUKE wrote in reply Investigations are being made by the medical inspector of the Local Government Board with a view to ascertaining and, if possible, removing the cause of the outbreak of fever at Lettermore If further inquiry appears to be necessary it will be made

TUESDAY, AUGUST 22ND

Unfit Men in the Army

In the course of the debate on the motion for the adjournment of the House for the autumn recess, several honourable Members complained that numbers of men who were physically unfit had been passed into the Army

Mr LLOYD GEORGE (Secretary for War) said that, owing to the bringing of the Military Service Act into operation, it was almost inevitable that anomalies and hardships should have arisen The marvel was that in the light of these conditions so few should have arisen The men now going into the army were about the best we had since the beginning of the war No doubt amongst them were men not quite up to the average physical standard No doubt in certain cases mistakes might have been made by medical men, and it was quite obvious that there might have been cases of tuberculosis which were not at once detected On the other hand there were cases which had been let off which ought not to have been let off It was only fair that before cases were brought up in the House of Commons, the opportunity should first be given to the War Office to set matters right The military authorities certainly did not wish to get men physically unfit passed into the Army

Births, Marriages, and Deaths.

BIRTHS

TURNER.—At Dene House Ellison place Newcastle-on Tyne on the 16th inst the wife of Major G Grey Turner R A M C (T F) of a son

MARRIAGES

ROXBURGH—FLETCHER.—On August 16th, 1916 at St Michael s Highgate by the Rev W Ogle Vicar of the parish assisted by the Rev Prebendary F S Webster Rector of All Souls Langham place and the Rev P E Twamley Alexander Bruce Roxburgh M B F R C S of 3 Manchester-square W son of the late William Roxburgh M D F R C P to Edith Annie daughter of George Fletcher M D J P and Mrs Fletcher of Highgate, N

N B —A fee of 5s is charged for the insertion of Notices of Births Marriages and Deaths

OUR CURRENT NUMBER

Being almost exclusively devoted to information especially interesting to Students we are necessarily compelled to defer the publication of communications on other important subjects

We tender our best thanks to those gentlemen who have at considerable personal trouble kindly supplied us with the returns and prospectuses upon which the information given in this Students Number of THE LANCET *relative to the various medical examining bodies hospitals and medical schools of the United Kingdom is based We regret that in some cases however owing to proofs having been either not returned at all or too late certain inaccuracies may be found.*

MANAGER'S NOTICES

ALTERATION OF INLAND SUBSCRIPTION RATES

OWING to the alteration in the Inland Newspaper Postal rate, the postage on each copy of THE LANCET will in future be 1d., and sometimes 1½d.

The revised Inland Subscription rates are —

One Year	£1	3	3
Six Months	0	13	8
Three Months	0	7	0

The rates for the Colonies and Abroad (thin paper edition) will be as usual —

One Year	£1	5	0
Six Months	0	14	0
Three Months	0	7	0

Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London County and Westminster Bank, Covent Garden Branch") should be made payable to the Manager, Mr CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C.

TO COLONIAL AND FOREIGN SUBSCRIBERS.

Subscribers abroad are particularly requested to note the rates of subscriptions given above.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied.

ADVERTISEMENT RATES

Books and Publications / Official and General Announcements / Trade and Miscellaneous Advertisements and Situations Vacant — Five lines and under 4s. 6d.

Every additional line 6d.

Situations Wanted First 30 words 2s. 6d.

Per additional 8 words 6d.

Quarter Page, £1 10s. Half a Page, £2 15s.

Entire Page, £5 5s.

Special terms for Position Pages.

Advertisements (to ensure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittance.

Communications, Letters, &c., have been received from—

A.—Messrs. Allen and Hanburys, Lond., Mr. E. Arnold, Lond., Mr. M. Alderson, Liverpool, Mr. W. L. Allott, Hoyland Nether, Anderson College of Medicine, Glasgow, Secretary of; Mr. S. F. d'Azevedo, Foz do Douro, Dr. J. L. Aymard, Johannesburg, Dr. T. D. Acland, Lond., Dr. N. A. Alexeeff, Stretensk, Siberia, Dr. Robert Armstrong-Jones, Woodford Bridge, Mr. R. J. Albery, Lond.

B.—Dr. D. M. Barcroft, Lond.; Dr. Thos. S. Blair, Harrisburg, Pa., Mr. J. Brindley James, Lond., British Journal of Nursing, Lond., Assistant Editor of; Sir Lauder Brunton, Bart., Lond., Mr. D. M. Bell, Pelham Manor, Black's Advertising Agency, Lond.; Bristol Eye Hospital, Secretary of; Messrs. John Bale Sons and Danielsson, Lond., Messrs. Butterworth and Co., Lond.; Lieutenant B. G. Barker, R.A.M.C.; Messrs. P. C. Burton and Co., Lond., Dr. W. C. Bosanquet, Lond., Lieutenant Norman Bradly, R.A.M.C., Board of Agriculture and Fisheries, Lond., British Dental Association, Lond., Secretary of; Messrs. Burroughs Wellcome and Co., Lond., Messrs. Baker Bros., Lond., Mr. A. de Winter Baker, Lond.; Dr. A. Bygott, Bury St. Edmunds, Dr. C. S. Bluemell, Rugby, Mr. Henry Bazett, Lond.

C.—Mr. T. P. Cooper, York, Messrs. E. Cook and Co., Lond., Church Army, Lond., Secretary of; Dr. Ostotto Naples, Messrs. J. and A. Churchill, Lond., Captain M. A. Collins, R.A.M.C., Clinical School, London University, Secretary of.

D.—Dr. T. Dutton, Lond., Dental Record, Lond., Publisher of; Lieutenant T. Newman Darling, R.A.M.C.; Captain A. H. T. Davis, R.A.M.C., Dr. Drummond, Newcastle on Tyne; Messrs. W. Dawson and Sons, Lond.

E.—Major C. H. Evans, R.A.M.C., Exeter Dispensary, Secretary of; Lieutenant-Colonel J. S. Elliott, M.D., Erasmic Co., Warrington.

F.—Mrs. M. Forrester Cambus, Factories Chief Inspector of, Lond., Dr. George Foy, Dublin, Messrs. Fannin and Co., Dublin, Mr. H. Freeman, Lond.

G.—Dr. A. C. Gemmell, Ampton, Dr. W. Garstang, Hucknall Torkard, Gas Lighting Improvement Co., Lond., Secretary of; Mr. J. Gamber, Paris, Messrs. R. D. Galbraith and Co., Lond.; General Post Office, Lond., Secretary of; Mrs. Green, Lond., Messrs. Gerth van Wyk and Co., Lond., G.

H.—Mr. Paul B. Hoeber, New York, Rev. A. J. Heath, Barrow Hill, Medical Officer of Health of, Mr. B. W. Houghton, Northfield; Dr. J. Haddon, Denholm, Colonel J. C. Humphreys, Brighton, Huddersfield Education Committee, Secretary of; H. H., Dr. G. L. Hill, Birmingham, Dr. Bardley Holland, Lond., Major Arthur F. Hertz, R.A.M.C., Mr. F. A. Hooking, Lond., Dr. Henry R. Harrower, Los Angeles, Hospital for Sick Children, Lond., Acting Secretary of.

J.—Jeyes' Sanitary Compounds Co., Lond., Mrs. Jones, East Meon, Captain Edgar Jones, R.E., Dr. E. Jackson, Denver, U.S.A.; Dr. A. J. Jex-Blake, Lond.

K.—Mr. H. Kimpton, Lond., King's Cross (Fever) Hospital, Dundee, Medical Officer of; Messrs. T. Kerfoot and Co., Bardsley, Captain F. H. Kennedy, R.A.M.C., Lieutenant James J. Kelly.

L.—Leeds University, Secretary of; London Lock Hospital, Secretary of; Messrs. Lee and Martin, Birmingham, Leeds Public Dispensary, Secretary of; London Electro-Medical Supply Co., Captain J. R. Lee, R.A.M.C., Miss T. C. Lennard, Hove, London (Royal Free Hospital) School of Medicine for Women, Assistant Secretary of.

M.—Mr. J. A. Manton, Sheffield, Mr. J. E. R. McDonagh, Lond., Dr. C. F. Marshall, Lond., Captain W. T. Dakin Mart, R.A.M.C.(T.), Metropolitan Asylums Board, Lond., Clerk to the; Colonel Kenneth Macleod, I.M.S. (retd.), Mr. A. R. Mansell, Lond., Lieutenant-Colonel C. S. Myers, R.A.M.C., Maruzen Co., Tokyo, Fleet Surgeon G. E. Macleod, R.N., Manchester Northern Hospital &c., Secretary of; Manchester Corporation, Medical Officer of Health of, Medical Research Committee, Lond., Secretary of; Dr. A. Maclachlan, Beauly, Dr. J. L. Maxwell, Bromley, Messrs. Macmillan and Co., Lond., Messrs. E. Moore and Sons, Lond.

N.—Mr. J. S. North, Brighton, Northumberland House, Finsbury Park, Proprietors of.

O.—Captain J. M. O'Meara.

P.—Mr. J. E. Purvis, Cambridge, Mr. Victor G. Plarr, Darlington, Messrs. Philip Son and Nephew, Liverpool.

R.—Mr. J. H. Rodgers, Bettisfield, Messrs. Reynell and Son, Lond., Reading Public Library, Chief Librarian of; Dr. John Robertson, Birmingham, Dr. Henry Robinson, Lond., Mr. E. Halford Ross, Lond.; Royal Medical Benevolent Fund, Lond., Secretary of; Mr. Sidney D. Rhind, Lond.; Russo-British Trade Exchange, Lond., General Manager of.

S.—Mr. E. W. Scripture, Lond., Mr. O. Sheen, Cardiff, Messrs. G. E. Stechert and Co., New York, Messrs. Spiers and Pond, Lond., Messrs. Squire and Sons, Lond., Dr. Edwin Smith, Lond., Messrs. Smith, Elder and Co., Lond., H.M.-Stationery Office, Lond., Superintendent of Printing of; Dr. Charles Slater, Lond., Captain A. F. S. Sladen, R.A.M.C., Dr. J. Smyly, Peking, Mr. F. Sander, Southampton, Newcastle-on-Tyne, St. Paul's Medical Journal, St. Paul, U.S.A.

T.—Dr. F. W. Tunnicliffe, Lond., Dr. C. E. A. Thacker, Cambridge, Dr. E. Salusbury Trevor, Lond., Captain James B. Tombleson, R.A.M.C.; Mr. J. Thin, Edinburgh, Mr. R. H. Taaffe, Dublin.

U.—Dr. T. Edgar Underhill, Barnt Green, University of London Press, Manager of; University College Hospital Magazine, Lond., Editor of; Under Secretary of State for the Colonies, Lond.

V.—Mr. P. C. Varrier-Jones, Cambridge.

W.—Mr. Aneurin Williams, Lond., Captain C. C. Weeks, R.A.M.C., Mr. A. Wilson, Lond.; Messrs. J. Wright and Sons, Bristol; Dr. E. W. Ainley Walker, Oxford, Messrs. W. Weddell and Co., Lond., Dr. W. A. Winter, Dublin; Mr. E. S. Weymouth, Lond., Mr. W. Roger Williams, Clevedon, Captain A. G. Wilkins, R.A.M.C., Mr. C. Hamilton Whiteford, Plymouth; Wellcome Historical Medical Museum, Lond.; Weekly Messenger and General Printing Co., Bromsgrove, Manager of; Messrs. Williams and Norgate, Lond.

Y.—Mr. M. J. Yourtell, Kilgetown.

Letters, each with enclosure, are also acknowledged from—

A.—Ardath Tobacco Co., Lond.; Anglo-French Drug Co., Lond.; Captain G. K. Aubrey, R.A.M.C., Addenbrooke's Hospital, Cambridge, Secretary of.

B.—Dr. G. F. Bradley, Halstead; Drs. Born and Smith, Manchester; Birmingham and Midland Eye Hospital, Secretary of; Staff Surgeon G. Bradbury, R.N.

C.—Dr. S. O. Clapham Martock, Co-operation of Temperance Male and Female Nurses, Lond., Secretary of; Mr. J. Cunning, Lond.; C.A.C.B.

D.—Mr. S. W. Daw, Leeds; Messrs. Detkin and Rocholl, Naples; Derby County Asylum, Mickleover, Clerk to the; Mr. H. Duncan, Lond.

E.—Electrical Installations, Lond.; E.N.B.; E.C.B.I.; E.A.; E.A.Y.

F.—Lieutenant-Colonel F. E. Fremantle, R.A.M.C.; F.L.H.B.

G.—Dr. E. W. Ginner, Menton; Mr. K. Goadby, Lond., G.M.K.; Dr. S. Gill, Formby; Guest Hospital, Dudley, Secretary of; Captain E. B. Ganson, R.A.M.C.; Mr. Arthur Griffith, Lond., G.G.W.

H.—Dr. C. G. Havell, Felixstowe; Messrs. J. Haddon and Co., Lond.; H.E.C.K.M.; Messrs. A. Heywood and Son, Manchester; Mr. J. Heywood, Manchester; Mr. W. Heinemann, Lond.; Messrs. Hirst and Co., Lond.; Rt. Rev. Bishop Hine, Lastingham; Harrogate Corporation, Treasurer of; H.H.

J.—Mr. J. Williams Jones, Manchester; J.D.; Mr. G. F. Johnston, Broughty Ferry.

L.—Sister Laura Kate, Beckingham; Dr. W. Love, Brisbane; Messrs. H. K. Lewis and Co., Lond.

M.—Dr. A. Mahood, Banff; Messrs. T. Morson and Son, Lond., Mr. A. R. MacGregor, Honiton; Mr. D. Maguire, Metheringham; Drs. Macleod, Marshall, Marsh, Billinghurst and Murray, Shanghai.

N.—Norwich Medico-Chirurgical Society, Librarian to the; Mr. M. Nicol, Bristol; Nottingham General Hospital, Secretary of; Dr. J. S. Nicolson, Glasgow.

O.—Mr. C. A. P. Osborne, Old Catton; Captain A. P. O'Connor, R.A.M.C.; Dr. F. M. Grace, Ozorio, Hong Kong.

P.—Captain L. T. Poole, R.A.M.C.; Messrs. Parke, Davis and Co., Lond.; Mr. J. F. Peart, Lond.; Captain S. E. Picken, R.A.M.C.; Lieutenant J. A. Pierce, R.A.M.C.

R.—Miss Radford, Plymouth; Royal Waterloo Hospital for Children &c., Lond., Secretary of; Registered Nurses Society, Lond., Secretary of.

S.—Dr. C. A. Shaw, St. Martin; Sanitas Co., Lond.; Fleet-Surgeon H. W. B. Shewell, R.N.; Star Assurance Society, Lond., Secretary of; S.P. Charges Co., St. Helens; Lieutenant G. E. Stephenson, R.A.M.C.; Sheffield Royal Infirmary, Secretary of.

T.—Mrs. Grey Turner, Newcastle-on-Tyne; Territorial Force Association, Cromarty, Secretary of; T.D.; Mr. E. L. Tattersall, Clayton-le-Moors.

V.—Vickers, Ltd., Barrow-in-Furness.

W.—Mr. J. S. Waller, Chelmsford; Messrs. Whiteley, Lond.; Messrs. J. Williams and Son, Bradford; W.E.R.; Mr. F. C. Wright, Hoy; Dr. J. S. Wilson, Llangollen; Dr. W. White, St. John's; Messrs. Wander, Lond.

An Experimental Study of LATENT TUBERCULOSIS

By CHUNG YIK WANG, M.D, B Sc,
CARNEGIE RESEARCH SCHOLAR FORMERLY MCCUNN RESEARCH SCHOLAR
(*From the Royal College of Physicians Laboratory, Edinburgh*)

Latent tuberculosis, in a sense other than that applied clinically, may be defined as an infection of the body with tubercle bacilli without the infection showing a specific development—that is a new formation or change of tissue, which can be recognised by macroscopic or microscopic examination

The present research was undertaken with a view to determine the presence and frequency of this form of tuberculous infection in adults and in children, and for this purpose my investigation has been directed to post-mortem cases which presented to a careful examination by the naked eye no evidence of tuberculous lesions anywhere in the body

Method of Investigation

The material chosen for this inquiry was furnished by lymphatic glands such as those of the cervical, bronchial, mesenteric, or retroperitoneal groups, which, on gross examination, either presented a healthy appearance or only showed a simple enlargement without being visibly diseased These glands were dissected from the body, and, as a precautionary measure for destroying the organisms acquired secondarily during the process of conducting the post-mortem examination their surfaces were carefully seared The material from different sites, after such preliminary treatment was then separately emulsified in the following way It was cut up into minute pieces with scissors and ground to pulp with a pestle in a porcelain mortar, normal physiological saline was then gradually added, while the grinding was continuously kept up until a fine emulsion was formed This was filtered through muslin to strain off the coarse particles the filtrate so obtained being then inoculated into the animals

Guinea pigs were employed in every instance for the detection of tubercle bacilli and the intraperitoneal method of injection was with few exceptions, that adopted The animals, if they did not die prematurely, were killed at the fifth or sixth week after inoculation, and a careful post-mortem examination was conducted with a view to determine the presence or absence of tuberculous infection

Results of Investigation

My study, in the attempt to throw light on the subject of latent tuberculosis in the meaning defined, comprises 32 cases which were found free from tuberculosis at necropsy and, also, subsequently on microscopic examination of a section of the glands employed for the test. I investigated four other cases which are not included for the following reasons in one, a section of the glands submitted to the test showed definite tuberculous lesions microscopically, though giving no indication of the disease to the naked eye, in the second case, the guinea pigs inoculated with the material all died prematurely, the remaining two cases were also excluded as the material utilised for the study was furnished by glands which subsequently on further examination were determined to be affected with malignant disease though showing only a simple enlargement at the necropsy

For descriptive purposes the cases can be conveniently divided into two groups one of adults and one of children. The *adult* group consisted of 18 cases constituted as follows —

Seven cases in each of which the cervical bronchial, and mesenteric glands were separately studied

Five cases in which the mesenteric glands alone were studied

Three cases in which the bronchial glands alone were investigated (One case also includes the glands along the pancreas)

One case in which the cervical and bronchial glands were separately tested

One case in which the cervical and mesenteric glands were separately examined

One case in which the cervical glands alone were determined

The other group that of *children*, consists of 14 cases as under —

The mesenteric glands from nine cases
The cervical and mesenteric glands from each of three cases
The cervical, bronchial, and mesenteric glands from one case
The bronchial glands from one case

On the result of animal inoculation, the material from 2 out of 18 cases of adults and from 1 out of 14 cases of children was proved to be tuberculous

A summary of the 32 cases into a tuberculous group (Table I) and a non tuberculous group (Table II) is given below

TABLE I.—*Three Cases showing neither Macroscopic nor Microscopic Evidence of Tuberculosis, but Proving to be Tuberculous on Animal Inoculation*

Ref No of case	Sex	Age	Nature of disease	Source of material for inoculation	Nature of material.
25	M.	56	Pericarditis nephritis	Cervical gl.	Slightly enlarged.
52	F	61	Heart disease lupus erythematosus	Glands near pancreas.	Swollen, congested.
54	M.	3½	Osteomyelitis.	Mesenteric gl	Soft, congested.

II —*Twenty nine Cases showing no Evidence of Tuberculosis on Naked Eye and Microscopic Examination, and on Animal Inoculation*

3	M	43	Injuries to spine	Cervical gl Bronchial gl. Mesenteric gl.	Slightly enlarged. Enlarged, pigmented Healthy
4	M	39	Lobar pneumonia.	Cervical gl Bronchial gl Mesenteric gl	Slightly enlarged " Normal.
6	F	36	Myocarditis.	Cervical gl Bronchial gl Mesenteric gl	Enlarged pigmented Slightly enlarged
7	F	22	Eclampsia.	Cervical gl Bronchial gl Mesenteric gl	Normal Slightly enlarged
9	F	64	Heart disease.	Cervical gl Mesenteric gl Bronchial gl.*	Normal —
10	M	44	Burns	Cervical gl * Bronchial gl Mesenteric gl.	— Enlarged congested. Normal.
26	M.	44	Bronchitis	Cervical gl Bronchial gl.	Enlarged pigmented
30	F	10	Splenic anæmia.	Cervical gl Bronchial gl Mesenteric gl.	Enlarged. " Greatly enlarged
31	F	16	Heart disease	Bronchial gl.	Enlarged œdematous
36	F	13	Meningitis, pericarditis.	Cervical gl Mesenteric gl	Greatly enlarged. Moderately enlarged.
41	F	19	Heart disease	Mesenteric gl	Slightly enlarged
42	M	23	Intestinal obstruction.	Mesenteric gl.	Moderately enlarged
43	M.	11	Cerebral hæmorrhage.	Mesenteric gl.	Enlarged
55	F	29	Peritonitis	Mesenteric gl.	Several enlarged.
56	M	22	Diabetes	Mesenteric gl	Many enlarged.
58	M	10	Bronchopneumonia	Cervical gl. Mesenteric gl	Enlarged "
61	F	12	?	Mesenteric gl	Generally enlarged
62	M.	13	Osteomyelitis.	Mesenteric gl.	
68	M	3	Pneumonia	Mesenteric gl.	Some enlarged.
69	F	7½	"	Mesenteric gl.	Enlarged.
79	F	52	Lymphadenoma (?)	Cervical gl.	Greatly enlarged
87	F	3	Bronchopneumonia	Mesenteric gl	Enlarged
88	M	3½	Bronchopneumonia	Mesenteric gl.	A few enlarged
90	M.	1	Intussusception	Mesenteric gl	Generally enlarged
92	F	7	"	Cervical gl. Mesenteric gl	Markedly enlarged. Enlarged, massed together
93	M	29	Syphilis (?)	Cervical gl Mesenteric gl	Enlarged pale
102	M	39	Heart disease	Bronchial gl	Enlarged
116	M	47	Heart disease.	Mesenteric gl.	One enlarged
117	M	23	Heart disease	Bronchial and mediastinal gl.	Enlarged congested.

* Animal died prematurely

As already mentioned, in none of these 32 cases was there any evidence of tuberculosis in the body either on naked eye or on microscopic examination Hence it may be stated that 3 of my 32 cases were undoubted instances of latent tuberculous infection, in which living tubercle bacilli were demonstrated in the tissues of the human body by means of animal test, and yet *in situ* these produced no changes detectable by the naked eye or the microscope

The following is a summarised account of the three cases of latent tuberculosis —

(*a*) CASE 25 —The patient, a male aged 56, died from heart disease At the post-mortem examination none of the organs were affected with tuberculosis The cervical and mesenteric glands were slightly enlarged, while the bronchial glands presented a normal appearance The guinea pigs inoculated with the cervical glands developed tuberculosis, those with the bronchial and mesenteric glands remained healthy

A culture isolated from the cervical glands, which showed histologically only some congestion, was of the human type (The criteria I used in the identification will be described in a paper to be published shortly in the *Journal of Pathology and Bacteriology*)

(*b*) CASE 52 —The case was that of a woman, aged 61, who died of a terminal pneumonia following lupus erythematosus At the necropsy no trace of tuberculous lesions could be discovered in the body None of the glands showed any signs of disease, except that along the aorta and pancreas a few were simply swollen and congested Sections of these glands showed, on microscopic examination, diffuse fibrosis and pigmentation A culture raised from the glands mentioned belonged to the human strain

(*c*) CASE 54 —The patient, a boy 3 years and 6 months old, died from acute osteomyelitis of the tibia Numerous abscesses of the lungs were found on post-mortem examination, while the other organs showed extremely cloudy swelling Other than enlargement and congestion of some of the mesenteric glands, there were no changes detectable in the glands A microscopic examination of the mesenteric glands employed for the test failed to reveal any signs of tuberculosis A culture isolated from the mesenteric glands was identified to be of the human type

A review of the literature on this subject furnishes the following results of previous observers

Orth,[14] as early as 1879, pointed out that glands, though normal in naked-eye appearance, may show tuberculous changes on histological examination, and he was probably the first to demonstrate the existence of such lesions in the tissues of the human body in conditions where they were undetected by the unaided eye

This view was subsequently corroborated by Loomis,[12] who demonstrated that glands which did not present to the naked eye any evidence of disease and were therefore considered normal, could give rise to a tuberculous infection in animals on inoculation This author used for his experiments the bronchial glands from adults

In the following year further confirmation was found in the investigation of Pizzini,[15] who showed that out of 30 cases of adults in whom no tuberculous lesions could be ascertained, 12 (10 with the bronchial and 2 with the bronchial and cervical glands) were found infected with tubercle bacilli, on submitting the glands to the animal test

Eastwood and Griffith,[5] in the course of their investigation into the incidence and bacteriological characters of tuberculous infection in children, have studied 150 cases in children Among these were 61 cases, showing at the post-mortem examination neither evidence of infection with tubercle bacilli nor visible lesions of tuberculosis In every case excepting one (in which the cervical glands were also included) the bronchial and mesenteric glands were separately studied by inoculating each group into guinea pigs Of the 61 non tuberculous cases, 5 produced tuberculosis in the inoculated animals, the tubercle bacilli isolated being of the bovine type in three instances

Stanley Griffith[7] has also studied, by means of animal inoculation, the bronchial and mesenteric glands of 33 children who showed at necropsy no macroscopic evidence of tuberculosis In one of two further cases the bronchial glands alone, and in the other the mesenteric glands alone, were investigated Exclusive of one case, in which all the guinea pigs inoculated died prematurely, out of the groups of these glands belonging to 34 children two produced tuberculosis in the guinea pigs inoculated, and in each instance it was the bronchial gland group The cultures obtained from these two cases were of the human type

There was no record of a histological examination of the glands being undertaken by the last four observers, hence their cases cannot be identified with conclusiveness as instances of latent tuberculosis in the sense above defined

Our definite knowledge, probably the first, of the occurrence of latent tuberculosis appears in the communication of Kaeble,[11] who mentions that two cases (one aged 41 years the other 5½ years) out of 23, in which normal bronchial glands were used for the inoculation, conveyed tuberculous infection to the experimented animals

Not long afterwards this subject was further investigated by MacFadyean and MacConkey,[13] who examined a series of mesenteric glands from 28 post-mortem cases, all of which, excepting one of 6 years and another of 8 years old, were under 5 years of age The 28 cases, based on a gross examination at necropsy, were divided into two groups, tuberculous and non tuberculous, the former numbering 8 cases, while the latter numbered 20 cases Of the non tuberculous cases, 5 were proved to be tuberculous on animal experiment, and in 2 of these a histological examination did not demonstrate the presence of any tuberculous lesions

More recently additional investigations on this subject have been recorded Rosenberger,[18] in his inquiry involving a study of the mesenteric glands in 21 non tuberculous cases which showed no tuberculous changes histologically, found that 6 (4 adults and 2 children) out of 14 cases were capable of transmitting tuberculosis to the inoculated animals

Harbitz[8] examined at necropsy 142 cases of children and found that 18 of the 91 cases in which there was neither macroscopic nor microscopic evidence of tuberculosis, were tuberculous on animal test The material giving this result was in 13 instances the neck glands In the other 5 cases the result was produced by injection of the following (1) tracheal glands, (2) neck and mesenteric glands, (3) mesenteric and retroperitoneal glands, (4) neck, tracheal, and mesenteric glands, and (5) neck and tracheal glands

That latent tubercle bacilli may also be found in glands other than lymphatic glands has been recorded by Goodale[6] in his report on the clinical examination of children with enlarged tonsils These he examined from 9 cases of children, varying from 2 to 9 years old The tonsils, before being inoculated into guinea pigs, were examined histologically in 7 instances Of the latter cases, 2 showed no tuberculous changes either to the naked-eye or microscopic examination, yet they were instrumental in giving rise to a tuberculous infection in the experimental animals

Ipsen,[9] during the course of his examination of 102 cases of children, of which 74 were non tuberculous, was able to demonstrate the presence of such latent tubercle bacilli in the mesenteric glands of one case, aged 2 years These glands on inoculation into guinea pigs produced tuberculosis

Again Weber and Baginsky,[10] in their investigation have been able to establish the presence of this form of latent tuberculosis in one case, that of a child of 2½ years old in a series of 26 children, ranging from 3 months to 12 years of age This case showed neither macroscopic nor microscopic evidence of tuberculosis and the material capable of infecting the animals on inoculation was furnished by the cervical glands

Bartel[1] has shown that in 8 out of 68 cases of children dying from measles diphtheria, or scarlet fever, in whom there were no tuberculous lesions detectable, either by the naked eye or the microscope, the glands (cervical, bronchial, or mesenteric) were proved to be tuberculous on inoculation

Other evidence has been furnished by the work of Rabinowitsch[16] This author mentions the case of a child aged 14 months, who died from broncho-pneumonia the cervical and mesenteric glands from which, though normal in appearance in every respect were capable of causing tuberculosis in the inoculated animals

Further instances of this latency are found in Beitzke's paper[4] He showed that among 27 cases of children dying from disease other than tuberculosis 9 were tuberculous on animal test, the material employed being normal cervical, tracheo bronchial, and mesenteric glands

Examples of quiescent tubercle bacilli are not only confined to the human body, for they have also been observed in animals by, amongst others, Rabinowitsch and Kempner[17]

From the large amount of evidence accumulated one may draw the conclusion in spite of objections from certain quarters, notably that of Joest[10] that the existence of latent tuberculosis in the human body in the meaning already defined, has been abundantly proved Further by means of the animal test, it can be substantiated in a certain proportion of individuals otherwise not recognisable as tuberculous by the naked eye or the microscope probably an average of about 12 per cent, as the appended table indicates with perhaps variations at different periods of life

Bartel and Spieler[3] lay great stress on the importance of a lymphoid or pre tubercular stage which is characterised by enlargement and swelling of the glands before there is any histological evidence of tuberculosis How long tubercle bacilli may remain latent in the human body cannot be

determined on the present knowledge of the subject, but in the case of animals Bartel[2] has demonstrated that tubercle bacilli may reside in the tissues as long as 104 days without producing any specific changes He used for his experiment rabbits and guinea pigs which were fed with human tubercle bacilli and found that the glands of the infected animals, though normal to the naked eye and microscopic examination, contained tubercle bacilli as was proved by their potency in producing tuberculosis in animals on inoculation

Summarising the results obtained by the various workers and myself gives the following table

TABLE III

Authors.	Cases examined	Latent cases	Latent cases %	Glands in which latent tubercle bacilli were demonstrated		
				Cervical	Bronchial	Mesenteric.
Kaeble	23	2	8 7	—	2	—
Harbitz	91	18	19 7	16	3	3
Weber u Baginsky	26	1	3 85	1	—	—
Ipsen	74	1	1 35	—	—	1
MacFadyean and MacConkey	20	2	10·0	—	—	2
Bartel	68	8	11 75	5 (a)	3	2
Rosenberger ..	14	6	42 85	—	—	6
Goodale	9	2	22 2	2 (b)	—	—
Own cases	32	3	9 4	1	1(c)	1
To als	357	43	12·05	25	9	15

(a) Including 4 tonsils (b) Tonsils (c) Bronchial and retroperi toneal glands.

My deep indebtedness is due to Professor James Ritchie for suggesting the line of research, and for his kind super vision and helpful criticism and to Dr J P McGowan and Dr James Dawson for help generously given in many directions To the pathologists past and present of the Edinburgh Royal Infirmary and of the Edinburgh Royal Hospital for Sick Children I wish also to record my sincere thanks for courtesy in providing me with material and in allowing me to have access to their post-mortem notes I have also to thank the Laboratory Committee for all the facilities afforded me in the Royal College of Physicians Laboratory Edinburgh and the Trustees of the Carnegie and the McCunn Research Scholarships and of the Moray Research Fund for financial assistance

References—1 Bartel J : Wein Klin Woch 1905 Bd xviii S 241 2. Ibid 1905 Bd xviii S 155 3 Bartel J u Spieler F Ibid 1906 Bd xix S 25 4 Beitzke, H Virchow s Archiv 1912, Bd ccx S 173 5 Eastwood A and Griffith, F Reports Local Govt Board on Public Health and Med Subjects New Series No 83, p 52–60 6 Goodale J L Boston Med and Surg Journ 1906 vol clv p 632. 7 Griffith A S Reports L.G B on Pub Health &c New Series No 83 pp 105–116 8. Harbitz F Untersuch u d Haufigk Lokal u a Breit d Tuber Christiania, 1905 (quoted) 9 Ipsen J Berl Klin Woch 1905 Bd xliii S 791 10 Joest E : Verh d Deut Path Gesell Jena, 1912. 15 Tag S 109 11 Kaeble Munch Med Woch 1903 Nr xlvi (quoted) 12. Loomis Amer Med Assoc 1891 vol xvi p 93 13 MacFadyean A and MacConkey A. Brit Med Jour 1903 Part ii p 129 14 Orth, J Virchow s Archiv 1879 Bd lxxvi S 217 15 Pizzini L P : Zeit f klin Med 1892, Bd xxi S 229 16 Rabinowitsch, L Berl Klin Woch 1907 Bd xliv S 35 17 Rabinowitsch L u Kempner W Zeit f Hygiene 1899 Bd xxxi S 137 18 Rosenberger R C : Amer Journ Med Science 1905 vol cxxx p 95 19 Weber A. u Baginsky A Tuber Arbeit a d Kaiserl Gesundh 1907 H vii S 102.

Edinburgh

RELIEF WORK IN ARMENIA—The chairman of the Armenian Refugees (Lord Mayor s) Fund sends us an account of three months work in the devastated vilayets of Armenia from an eye witness Rev Harold Buxton honorary secretary to the fund, who has just returned to England It is urgently necessary that public opinion should be focussed on the position of these most unfortunate victims of the war Mr Buxton confirms the terrible stories of their sufferings told in the House of Lords some months ago by Lord Bryce Of the estimated 2 000 000 Turkish Armenians perhaps 1 000 000, the account goes have been deported and 500 000 massacred Only some 200 000 escaped into the mountains and so across to Russian soil These are the people whom the fund is at present relieving and help must be available during the coming winter The most urgent matter is now to repatriate them on their own lands The address of the fund is 95 Victoria street S W

THE DIAGNOSIS OF THE ENTERIC FEVERS IN INOCULATED INDIVIDUALS BY THE AGGLUTININ REACTION

BY GEORGES DREYER M A. OXON, M D COPENHAGEN
MAJOR, R.A M.C. PROFESSOR OF PATHOLOGY UNIVERSITY OF OXFORD
AND
E W AINLEY WALKER M A, D M OXON,
CAPTAIN O T C ATTACHED THIRD SOUTHERN GENERAL HOSPITAL LECTURER IN PATHOLOGY UNIVERSITY OF OXFORD
(*From No — Stationary Hospital B E F, and Department of Pathology, University of Oxford*)

A REPORT TO THE MEDICAL RESEARCH COMMITTEE

IN addition to material collected at the Department of Pathology in Oxford, we refer in the following communication to details of material already published in outline by Dreyer and Torrens from the — Stationary Hospital British Expeditionary Force For permission to make use of this material we are greatly indebted to the officer commanding, Lieutenant-Colonel Evans D S O, R A M C as well as to the officer then in charge of the bacteriological laboratory of that hospital, Lieutenant-Colonel Grattan, R A.M C, and his staff of workers

The agglutinin reaction constitutes the most valuable guide which we possess for the diagnosis of the enteric fevers (typhoid paratyphoid A and paratyphoid B) For while direct cultivation from blood fæces, and urine is, when successful, final and convincing, the percentage of cases in which positive results are obtained by culture methods does not at a liberal estimate exceed about 50 per cent Among these cases will, of course, be also included carriers not actually suffering from active disease

Unfortunately there appears to exist a belief that the introduction of protective inoculation against B typhosus and more recently against the paratyphoid bacilli also, has rendered the agglutinin reaction less reliable or less conclusive diagnostically than was formerly the case This belief however is not justified by the evidence available, though it is undoubtedly the fact that the practice of inoculation has not only enhanced certain difficulties which already existed but also introduced some new difficulties of its own As a result of this it is no longer possible to make use with advantage of certain methods largely qualitative in character which before were commonly considered adequate for diagnostic purposes And it has become necessary to employ some accurately quantitative method Moreover, since the diagnosis now depends on the results of a series of several (three or more) successive observations, the method used must be one whose results on successive occasions are strictly comparable *inter se* and can be expressed in definite and accurate measurements relative to some fixed standard Such a method has the further very great advantage that wherever and whenever such tests may be performed they will form a part of a homogeneous statistical material All these requirements are met by the method which has been rendered generally available in naval and military hospitals for the past 12 months by the issue on behalf of the Medical Research Committee of the standardised agglutinable cultures prepared in Oxford But the diagnosis of individual cases could equally well be carried out by any other method of an accurately quantitative character if such method be in use

The curious and widespread lack of appreciation which still exists with regard to the necessity for employing exact quantitative methods in performing agglutination tests in inoculated individuals has led to most remarkable and contradictory statements Thus while C D Hamilton[1] for example declares that "a positive Widal reaction in any person who has ever been inoculated with the antityphoid vaccine is of no value in diagnosing typhoid fever H L Tidy[2] maintains that "a positive agglutinative reaction to bacillus typhosus after the fifth day of pyrexia is as definite a proof of typhoid fever in an inoculated man as in a non inoculated one

The answer to these statements is that the exact measurement of the agglutinin titre of inoculated persons by means of standardised agglutinable cultures shows that they are

equally erroneous On the one hand, active infection can be diagnosed as well in typhoid inoculated individuals as in non inoculated persons, and, on the other hand the absence of inoculation agglutinins within the first 12 months or more after inoculation is a very rare occurrence in properly inoculated individuals, and is no more frequent in the subjects of pyrexial attacks than in persons who remain in perfect health

These points have already been dealt with on several occasions by ourselves and others There is, however, this difference as regards practical bearing between the views of Hamilton and Tidy—namely, that while Hamilton's contention, if accepted, merely leads to the result that about half the cases will go undiagnosed, Tidy's view would entirely vitiate all statistical material bearing on the protective value of antityphoid inoculation Since, as we have stated before, the vast majority of all febrile attacks occurring in persons inoculated within a year or so would, if his conclusions were accepted, necessarily be diagnosed as typhoid fever Now that a triple (typhoid, paratyphoid A, and paratyphoid B) vaccine is in general use in the armies at war, the questions at issue will acquire a steadily increasing importance Accordingly, although we have already endeavoured to explain the fallacy of the contentions put forward by Tidy, his continued efforts to elaborate a defence of his views, his failure to produce evidence in support of them, and the misuse of the data published by ourselves and others into which he has been led, make it necessary for us to seek indulgence while we return once more to the examination of his contentions We may add that were it not for the urgent practical importance of enteric diagnosis under existing conditions we should not have considered it at all necessary to deal further with statements so obviously at variance with the accumulated evidence of different observers as those put forward by Tidy

H L Tidy's Contentions

We have already quoted one of Tidy's leading statements made at the discussion on paratyphoid fever at the Royal Society of Medicine [3] We now place in parallel columns the views which he put forward in THE LANCET [2] in the early part of this year and our own replies based on evidence which we presented in the same journal.[4]

Tidy's Conclusions	*Evidence presented by us to show that*
'1 Inoculation agglutinins are diminished or entirely removed by febrile conditions It is possible that they are converted into agglutinoids "2 In certain cases they may return but usually do not do so"	'1 The febrile condition associated with paratyphoid fever does *not* cause disappearance of typhoid agglutinins from the blood of persons inoculated against typhoid 2. Other febrile conditions also in so far as they have hitherto presented themselves, do *not* cause disappearance of typhoid agglutinins from the blood of inoculated persons
"3 A positive agglutination reaction to B typhosus after the fifth day of pyrexia has the same value in an inoculated as in an uninoculated person	3 The statement opposite is entirely erroneous Its acceptance would lead to such deplorable results in diagnosis that we feel compelled to repeat its categorical denial
'4 Immunity conferred by inoculation may be affected at the same time as the inoculation agglutinins	—

These three statements in reply to Tidy's conclusions were proved quite fully by the figures which we published But shortly after the appearance of our contradiction Tidy, ignoring altogether the fact that this demonstration of the futility of his original contentions had been afforded, but at the same time tacitly abandoning all further effort to defend them, proceeded in a letter to the Editor of THE LANCET to re shuffle his cards He then took up an entirely new position, but with such adroitness as to convey to the casual reader the impression that what he now put forward was actually the view that we had attacked And he took us severely to task for having failed to offer evidence adequate to disprove this new theory which had not been before us when we wrote Finally, by making considerable play with a totally inaccurate interpretation of the figures which we submitted he purported to show that they were really favourable to his view Upon this letter a brief comment was written by one of us (E W A W [6]), pointing out that Tidy had been entirely misled in his use of our figures Tidy then replied in a new letter,[7] which showed still more clearly his inability or unwillingness to appreciate the meaning of numerically expressed scientific observations, and castigated us again, because, as he stated, we had failed to submit figures in disproof of his revised but equally fallacious views which, as a matter of fact, he has not himself as yet supported by any solid or significant evidence *

Having thus briefly, but as we believe correctly, indicated the general character of Tidy's dialectic, we shall now try to deal as concisely as possible with the details of his arguments, and to show how completely he has misinterpreted the evidence

On two different occasions Tidy applied two different processes to our figures On the first occasion he compared the arithmetical mean of the numbers of standard agglutinin units found in normal inoculated individuals (Dreyer and Inman [8]) with the means of the numbers of the units found in inoculated persons suffering from paratyphoid fever or other febrile conditions This procedure was fallacious for the following reasons

1 The relatively limited number of observations given in each of our series showed an enormous range of individual variation, as, for instance, among 74 normal inoculated individuals a range from 30 to 1390 standard agglutinin units, in the case of 75 individuals suffering from paratyphoid fevers a range from 6 to 875 units, and in 33 cases of other febrile conditions a range from 6 to 438 units They therefore constituted a material to which the method of taking means was quite inapplicable

2 The normal inoculated individuals were not comparable as regards inoculation agglutinins with the febrile cases, since the former were examined within a comparatively short time of their inoculation, while the latter were only observed after the lapse of a much longer interval of time This point is naturally fundamental, since, as is well known, the inoculation agglutinins steadily diminish from the period, within a few weeks of the date of inoculation, when their maximum is reached

On the second occasion Tidy instituted a comparison between the values of the middle terms of the different series This method, however, was equally unsuitable, and for the same reasons Moreover, the fact that the figures which he arrived at by the method of means were widely divergent from those which he obtained by his second method of taking middle terms should have afforded him a mathematical demonstration of the fact that both these methods of comparison were inapplicable to the figures in question

To make this point clear we place in parallel columns the results obtained by taking arithmetical means and by taking middle terms as done by Tidy

TABLE I

Series	Averages arrived at by	
	Arithmetical means	Middle terms
Normal typhoid inoculated persons ..	238·9†	139·0†
Paratyphoid A occurring in typhoid inoculated persons	37 2	32 5
Paratyphoid B occurring in typhoid inoculated persons ..	150 3	75·0
Other febrile conditions occurring in typhoid inoculated persons	77·6	44·0

† Tidy gives these figures incorrectly as 225 and 138 respectively

Now it is well known that unless the figure obtained by taking the arithmetical mean of a series of observations is approximately the same as the value of the middle term of the series, the material concerned cannot properly be used for the purpose of arriving at mean values In the table above it is seen that only in one of the series (paratyphoid A cases) do these figures at all approach each other in value In the paratyphoid B series the figure for the arithmetical mean is double that of the middle term of the series And in the other two series the difference is enormous, though not quite so great It follows that the arguments which Tidy bases on the mean values obtained from our figures by these two methods necessarily fall to the ground

* Since the present communication was written it has come to the knowledge of one of us that Dr Tidy prepared his material for publication some eight months ago Its non appearance hitherto has been due to circumstances beyond his control

That the inoculation agglutinins do not disappear as a result of febrile attacks we had already proved. And from what has just been said it is evident that our material cannot be made use of to support the view that they are diminished.

Tidy further states that if he applies a method of comparison which we ourselves made use of—namely, to take the presence of as much as 25 Standard Agglutinin Units per c c of serum as an arbitrary standard of comparison—to the normal inoculated individuals in Dreyer and Inman's series and to our series of cases, he finds that the febrile cases show a marked diminution in inoculation agglutinins this limit of 25 agglutinin units was chosen by us as an arbitrary point of comparison as being very far above the titre of typhoid agglutinins found in normal non inoculated persons who have not had typhoid fever, since such persons only very exceptionally exhibit the presence of as much as standard units It in no way represents a diagnostic limit But this method of comparison was equally inapplicable as employed by Tidy for the reasons already given—namely that the normal individuals and the febrile cases constituted dissimilar materials owing to the fact that the two series were examined at very different times from the dates of their protective inoculation On the other hand, the material to which we applied this form of comparison was not subject to any such objection

In this connexion we must advert to an astonishing statement made by Tidy in the course of his arguments—namely, that a serum titre of 100 Standard Agglutinin Units apparently corresponds to a 'positive' reaction in non inoculated persons It is difficult to understand how so entirely fallacious a statement could commend itself to anyone acquainted with the ordinary limits which have been recognised for years as forming a reliable standard in the serum diagnosis of typhoid infection and still less to anyone who had read attentively the communications which he undertook to criticise. For 100 standard units correspond to standard agglutination in a serum dilution of anything from 1 in 250 to 1 in 700 or 800 according to the sensitiveness of the particular standardised agglutinable culture employed Whereas it is definitely laid down in the directions for the use of standardised agglutinable cultures which since the middle of July, 1915 have been issued from this department on behalf of the Medical Research Committee as follows 'In *non inoculated persons* who have not had typhoid (or paratyphoid) fever agglutination in dilution of 1 in 25 justifies a strong suspicion of typhoid (or paratyphoid) infection. But the test must be applied again in the course of a few days to ascertain whether there is any change in the titre of agglutination. Marked agglutination in a dilution of 1 in 50 or more is (nearly always) diagnostic of active typhoid (or paratyphoid) infection' That is to say that the presence of from 4 units to 10 units of agglutinin justifies strong suspicion, and the presence of 10 units to 20 units is (nearly always) definitely diagnostic. These limits of serum dilution were clearly stated by one of us (G D) as long ago as 1906,[3] and have been maintained in all subsequent communications, since all experience showed them to be fully adequate It was on this account that we were able to deny Tidy's statement that a positive agglutination reaction to B typhosus after the fifth day of pyrexia has the same value in an inoculated as in a non inoculated person,' and that 'other febrile conditions cause disappearance of typhoid agglutinins Since it has been shown normal non inoculated persons who have not had typhoid fever only very exceptionally exhibit an agglutinin titre of as much as 4 standard units while more than 93 per cent of the febrile cases' which we quoted had a titre of from 6 to 875 units per cubic centimetre of serum

But Tidy further claims that the tables published by Dreyer and Torrens[1] in their first contradiction of his statements also show that it is evident that the febrile cases have distinctly less agglutinin than the *normal* inoculated persons How he arrived at this conclusion from the data given we cannot conceive But we can easily show that it is not the case by now giving as an example the data for the 149 paratyphoid B cases (from the 171 cases of paratyphoid fevers then referred to) in greater detail expressing the observations in Standard Agglutinin Units This form of expression was not employed on the previous occasion because the tables as then stood contained ample evidence to refute the contentions then put forward by Tidy

Table II A contains the individual observations summarised in the table published by Dreyer and Torrens from the — Stationary Hospital, British Expeditionary Force In all the cases the B paratyphosus B was isolated in the course of the disease. Tables II B and II C give the material

TABLE II —*Data for Typhoid inoculated Individuals*

A. *Typhoid Agglutinin Units in Paratyphoid B Fever chiefly during the Acute Stage*

No	Standard agglutinin units	No	Standard agglutinin units	No	Standard agglutinin units	No	Standard agglutinin units	No	Standard agglutinin units	No	Standard agglutinin units	No	Standard agglutinin units
1	23 000	23	1800	45	925	67	600	89	235	111	180	133	65
2	17 000	24	1800	46	925	68	600	90	230	112	163	134	64
3	15,000	25	1700	47	900	69	500	91	230	113	148	135	52
4	8,200	26	1700	48	900	70	500	92	225	114	148	136	50
5	6,100	27	1650	49	870	71	481	93	230	115	135	137	50
6	4 000	28	1540	50	820	72	475	94	225	116	135	138	50
7	3 520	29	1540	51	812	73	455	95	210	117	100	139	50
8	3 370	30	1450	52	810	74	455	96	200	118	100	140	42
9	3,330	31	1350	53	740	75	452	97	200	119	100	141	37
10	3 250	32	1300	54	740	76	370	98	200	120	100	142	34
11	3,200	33	1110	55	690	77	359	99	200	121	100	143	26
12	2,770	34	1040	56	675	78	333	100	200	122	100	144	24
13	2,600	35	1040	57	650	79	330	101	200	123	100	145	24
14	2,560	36	1000	58	640	80	277	102	200	124	100	146	15
15	2,560	37	1000	59	640	81	277	103	200	125	100	147	11
16	2,500	38	1000	60	580	82	275	104	200	126	100	148	10
17	2,500	39	1000	61	552	83	275	105	200	127	100	149	5
18	2,300	40	1000	62	555	84	270	106	200	128	93		
19	2,220	41	1000	63	540	85	270	107	200	129	85		
20	2,050	42	950	64	540	86	256	108	192	130	53		
21	2,000	43	925	65	512	87	236	109	185	131	69		
22	1 850	44	925	66	500	88	235	110	185	132	67		

B *Typhoid Agglutinin Units in Paratyphoid B Fever observed chiefly during Convalescence*

1	875	6	219	11	88	16	75	21	44	26	37	31	19
2	875	7	219	12	88	17	75	22	44	27	28	32	9
3	650	8	162	13	88	18	65	23	44	28	22	33	6
4	438	9	88	14	88	19	44	24	44	29	22		
5	219	10	88	15	88	20	44	25	44	30	21		

C *Typhoid Agglutinin Units in Paratyphoid A Fever, chiefly during Convalescence*

1	88	7	75	13	44	19	37	25	22	31	21	37	14
2	88	8	75	14	41	20	37	26	22	32	21	38	9
3	75	9	56	15	37	21	37	27	22	33	21	39	7
4	75	10	56	16	37	22	28	28	22	34	19	40	7
5	75	11	56	17	37	23	28	29	22	35	19	41	7
6	75	12	44	18	37	24	28	30	22	36	14	42	6

D *Typhoid Agglutinin Units in Normal Inoculated Persons*

1	1,500	12	348	23	278	34	139	45	76	56	61	67	36
2	1 390	13	348	24	278	35	139	46	76	57	61	68	36
3	1,330	14	300	25	162	36	139	47	76	58	61	69	36
4	1,250	15	300	26	162	37	139	48	76	59	60	70	36
5	750	16	300	27	162	38	139	49	70	60	60	71	35
6	600	17	300	28	150	39	139	50	70	61	60	72	35
7	600	18	300	29	150	40	139	51	70	62	59	73	30
8	500	19	278	30	150	41	139	52	67	63	59	74	30
9	580	20	278	31	139	42	132	53	67	64	56		
10	580	21	278	32	139	43	139	54	61	65	36		
11	350	22	278	33	139	44	139	55	61	66	36		

published by Dreyer Gibson, and Ainley Walker from the 3rd Southern General Hospital and Table II D the data for normal inoculated individuals obtained by Drever and Inman All the data are expressed in terms of standard typhoid agglutinin units per cubic centimetre of the serum

It is obvious on the most cursory inspection of these tables that it would be entirely irrational to attach any kind of value whatever to their arithmetical means or to their middle terms for the purpose of direct comparison between the different series, since they show a range of individual variation so extreme—as for example from 5 to 20 000 Standard Agglutinin Units in a series of 149 observations

To show how utterly irrelevant this method of comparison is for the figures in question, we give in Table III the figures representing the arithmetical means and middle terms of the series of observations recorded above, either individually or in various combinations The entire lack of agreement between the value of the different arithmetical means and

TABLE III

Series	Average arrived at by	
	Arithmetical means	Middle terms
1 Normal typhoid inoculated person (72 cases)	238·9	139 0
2 Paratyphoid B observed chiefly during the acute stage (149 cases)	1146 8	462·0
3 Paratyphoid B observed chiefly during convalescence (33 cases)	150 3	75·0
4 All the cases of paratyphoid B taken together (224 cases)	968 1	235 5
5 All the cases of paratyphoid B and paratyphoid A taken together (255 cases)	791·9	200·0

the corresponding middle terms for each series of observations renders obvious the illegitimate character of such a method of comparison in the case of the observations concerned

Nevertheless, it may be of interest to note for the benefit of anyone to whom the elementary principles of mathematics are unfamiliar what extraordinarily adverse evidence as to the validity of Tidy s views would be afforded by this erroneous method of comparison Thus it is seen that the agglutinin titre in those cases of paratyphoid B fever which were for the most part examined during the acute stage of the disease yield an arithmetical mean 4 8 times as great as the arithmetical mean of the titres found in normal inoculated individuals Expressed by middle terms the former series shows a titre 3 3 times as great as that in the latter Assuredly there is here no evidence of diminution or disappearance of typhoid agglutinins as the result of the pyrexial attack. Similarly, when all the paratyphoid B cases are taken together the arithmetical mean of their agglutinin titres and the middle term are respectively 4 times and 1 7 times as great as the corresponding figures for the normal inoculated individuals In the same manner, taking all the paratyphoid fever cases A and B together, the arithmetical mean and the middle term of their agglutinin titres are respectively 3 3 times and 1 4 times as great as in the case of normal inoculated individuals

On the other hand, if we consider by themselves the cases of paratyphoid B fever observed chiefly during convalescence it is seen that the typhoid agglutinin titre of normal inoculated individuals is 1 6 times, or 1 9 times as great as that of the former, according as we take arithmetical means or middle terms But this difference is an entirely artificial and meaningless one, since the cases of paratyphoid B fever observed in the acute stage have themselves a titre 7 6 times, or 6 3 times as great as that of convalescent cases according as we take arithmetical means or middle terms There is therefore no evidence whatever in any of the data given above which lends the least support to Tidy's views Moreover, our emphatic and repeated contradiction of his statement that inoculation agglutinins are removed or markedly diminished by pyrexial attacks, and that a positive Widal reaction after the fifth day of pyrexia has the same value in an inoculated as in an uninoculated person, is not based exclusively on the extensive material which has accumulated during the present war It is in absolute agreement with the important and careful observations carried out by Grattan and Harvey, and Grattan and Wood some years ago in their investigation of paratyphoid fever in India Thus Grattan and Harvey [11] showed that in undoubted cases of paratyphoid A fever in typhoid inoculated individuals (in which the bacillus was recovered from the blood) a *marked increase* in the agglutinins for B typhosus was noted They further stated that "these cases would have been diagnosed on the Widal reaction as mild cases of true enteric fever" In a later communication Grattan and Wood [12] repeated and amplified the foregoing conclusions, and laid particular stress on the danger of errors in diagnosis arising from this increase in inoculation agglutinins

The fact of the matter is that the question whether the inoculation agglutinins are diminished at all or not after the fourth or fifth day of pyrexia can never be settled finally by comparing different individuals Since the range of individual variation is so enormous as regards the agglutinin content of the serum, whether in normal inoculated persons or in those attacked by fever, it can only be decided by following the serum titre of individuals during the acute infection by means of exact quantitative measurements capable of reduction to a constant standard so as to ascertain what are the changes which do actually occur in their agglutinin titres This is done in all our cases as a matter of routine, since, as has been fully explained on a previous occasion (as well as in the directions for the use of Standard Agglutinable Cultures) it is necessary to do so in order to arrive at a reliable serum diagnosis

The effect of the pyrexial condition associated with paratyphoid B infection is exemplified in the cases shown below in Table IV, which are taken from cases where the titre of typhoid agglutination was definitely affected by the febrile

TABLE IV —*Paratyphoid B Fever in Typhoid inoculated Individuals*

Case.	Day of illness	Standard agglutinin units per c.c of serum		
		Typhoid	Paratyphoid A.	Paratyphoid B.
1	9	556·0	< 1 4	2060·0
	13	3700 0	< 1 4	10600·0
	17	13090·0	< 1 4	29400 0
	21	3700 0	< 1 4	16480·0
2	8	37·0	< 1 4	29·4
	15	83 0	< 1 4	735·0
	22	55·6	< 1 4	1040·0
	32	25·9	< 1 4	470·0
3	10	46 3	< 1 4	588·0
	14	278·0	< 1 4	2940·0
	18	650·0	< 1 4	11180·0
	22	593·0	< 1 4	8240·0
4	9	481·0	< 1 0	588·0
	13	2960 0	< 1 0	7650 0
	17	3520·0	< 1·0	26400·0

attack In other cases, as we have shown elsewhere the typhoid agglutination titre may remain unchanged or only slightly increased throughout the course of paratyphoid fever But wherever the typhoid agglutination titre is affected at all the change produced is one of active rise, subsequently followed by a fall towards the former level

When such rise occurs its beginning is either somewhat antecedent to, or synchronous with, the beginning of the rise in paratyphoid B agglutination titre Its maximum is reached either before or at the time that the paratyphoid B agglutinins reach their maximum And as seen from the examples given in Table IV, in cases where the typhoid maximum precedes the maximum of paratyphoid B agglutination the subsequent fall in typhoid titre progresses rapidly, while the paratyphoid B titre continues to rise sharply to its maximum This maximum occurs between the sixteenth and twenty fourth (usually the eighteenth to twentieth) day of the disease (as is also the case in typhoid fever and in paratyphoid A fever), after which the usual fall in paratyphoid B titre sets in

The cases quoted in Table IV are a few examples from a long series They prove clearly that there is no diminution or disappearance of typhoid inoculation agglutinins as the result of the pyrexial condition in paratyphoid fever It follows that in view of the great mass of evidence produced by other workers, as well as by ourselves it is obvious that Tidy's startling conclusions, which we have been at pains to discuss in detail, are entirely erroneous Moreover, he has not himself as yet offered any substantial body of data in their support The real question at issue is a simple question of facts, and there we now propose to let the matter rest.

Abortive Cases of Typhoid and Paratyphoid Fevers

The occurrence of mild cases of enteric fever has long been recognised, and Woodruff and others have called special attention to the danger of neglecting these cases, which may only have slight fever lasting a few days In practice they are often taken for other conditions, and are not uncommonly put down as febricula Sometimes, as Osler and McCrae point out they may only be recognised through the routine Widal reaction If these facts were true before the introduction of protective inoculation, still more must they be

true since the widespread introduction of inoculation against typhoid and the paratyphoid fevers

The effect of prophylactic inoculation is threefold firstly, it diminishes the incidence of these infections, secondly, it lessens the mortality among those infected, and, thirdly, it increases *the proportion of mild and atypical cases* among the latter Now, in non inoculated persons the diagnosis of mild cases is not difficult where the Widal reaction is employed as a matter of routine But in inoculated individuals the mere detection of agglutinin is, of course without significance Accordingly, all doubtful febrile cases of however short duration occurring in inoculated persons require a quantitative determination of their agglutinin titre for typhoid and paratyphoid bacilli on three or more successive occasions at a few days' interval before the presence of typhoid or paratyphoid infection can be excluded

In a certain number even of the mildest cases of these infections the rise and subsequent fall in the agglutinin titre are so definite that the diagnosis could never be in doubt But in other cases the rise and fall of the curve are much less marked, and differences of opinion may exist as to whether the case is one of active infection or not In order to assist in the elucidation of such cases it may be stated that the following points are of importance in the interpretation of the agglutinin curves

1 The maximum agglutinin titre of active typhoid or paratyphoid infection occurs between the sixteenth and twenty fourth day of the disease, and most frequently about the eighteenth to twentieth day

2 If the maximum is reached at what appears to be an earlier date it is important to institute a careful inquiry into the actual date of onset of the illness

3 If it is clear that the maximum falls markedly outside the limits given above (day 16–24) a diagnosis of typhoid or paratyphoid fever should not be based on a rise in titre of only moderate extent—i e, a 100 or 200 per cent increase in agglutinin titre Because experience is not at present sufficient to exclude the possibility that a rise of this extent may be due to other febrile conditions

4 In following out the titration of the patient's serum on several successive occasions it will frequently be found that the maximum has fallen between two dates of observations And two successive observations at about the same level do not mean that the curve is stationary at this point but merely that the maximum has occurred between there. Similarly, if the two highest observations are at different levels, it does not follow that the highest titre observed represents the maximum of the agglutinin curve But it does follow that the maximum has occurred between these points

5 In inoculated persons among whom mild and atypical attacks of typhoid (or paratyphoid) fever are likely to occur with fever of perhaps only a few days' duration and with few if any of the usual symptoms the diagnosis of typhoid or paratyphoid fever must not be rejected without the most careful consideration As far as experience at present goes if a regular rise and subsequent fall, even of only 100 or 200 per cent occurs in the typhoid (or paratyphoid) agglutinin titre of the serum and its maximum clearly falls between the sixteenth and twenty fourth day from the onset of illness the case is likely to be one of typhoid (or paratyphoid) infection And we must not be misled by the fact that the patient may be convalescent or quite well again long before the date when his maximum agglutinin titre is reached

References—1 C D Hamilton The Effect of Typhoid Vaccination on the Widal Reaction Journal A.M.A., Nov 27th 1915 2 H L Tidy: Influence of Febrile Conditions on Inoculation Agglutinins THE LANCET Jan 29th 1916 p 241 3 H L Tidy: Discussion on Paratyphoid Fever Proceedings of the Royal Society of Medicine 1915 vol ix Medical Section p 29 4 Dreyer Gibson and Ainley Walker: Further Remarks on Agglutination Tests in Inoculated Persons THE LANCET April 8th 1916 5 H L Tidy Influence of Febrile Conditions on Inoculation Agglutinins THE LANCET April 22nd 1916 6 R W Ainley Walker: Influence of Febrile Conditions on Inoculation Agglutinins, THE LANCET April 29th 1916 7 H L Tidy: Influence of Febrile Conditions on Inoculation Agglutinins, THE LANCET May 20th 1916 8 Dreyer and Inman The Persistence of Antibodies in the Blood of Inoculated Persons as estimated by Agglutination Tests THE LANCET July 31st 191 9 G Dreyer: Widal's Reaction with Sterilised Cultures Hospital Gazette No 19 1916 Journal of Path logy and Bacteriology vol xiii 1909 10 Dreyer and Turner: Paratyphoid THE LANCET Dec 18th 1915 11 Grattan and Harvey An Inquiry into a Small Epidemic of Paratyphoid Fever in a Camp in India Journal of R A M C xvi p 9 12 Grattan and Wood: Paratyphoid Fever in India Journal of R A M C xvii p 143

A METHOD OF DROP-MEASURING LIQUIDS AND SUSPENSIONS

(SUPPLEMENTAL NOTES AND NOTES ON APPLICATIONS)

BY R DONALD, B SC N Z, D P H OXF

(*from the London Hospital Bacteriological Laboratory*—Professor W BULLOCH, M D Aberd, F R S)

REFERENCE to the various topics of the two articles—the article in THE LANCET of Dec 4th, 1915, and this article—will be facilitated by the following summary of contents The roman numeral refers to the article, the ordinary number to the paragraph

Surface tension promotes accurate delivery by drops and hinders accurate delivery otherwise of small quantities of liquids I, 1-3, II, 61 Outline of this drop measuring method I, 4-17, II, 2 The conditions determining drop size briefly stated I, 4, cf II, 24 Tubing required I, 6, II, 15 Drawing pipettes I, 7 Gauging I, 8 Testing drop-count of a liquid I, 9 especially by small measure flask II, 23 Effect of drop rate on drop volume I, 10, II, 26 Mercury plunger tube I, 11, II, 64 A method of using the teat I, 11 Separator cylinder with Mariotte tube I, 15, 16 Resistance in pipettes by capillary, cone valve, &c I 10, II, 17

Apologia for the second article II., 1-3 Fundamental physical phenomena II., 4-8 Apparently these phenomena are misunderstood in some quarters II. 9, 10 Errors in "Standard" dropping pipettes II., 9, 10, 34-42 Corrective experiments II, 12 Table of gauge sizes, Lancashire (i e, Stubbs) and Morse, drops per c c, c mm per drop II, 20 Explanation of table II, 19, 21, 15 Various liquids have various surface tensions II, 22 *et passim* in the applications Making and use of small measure-flask for checking drop count II, 23 Acid fast marking with blue black ink II, 23 Recapitulation of essentials for correct drop measuring II 24 Drop volume increases more and more rapidly as pipette slopes from vertical II 25

List of applications of the method II, 28 Bibliography of the method I, 1, note, II, 28 Applications in stalagmometry and in viscosometry II. 29 In the Widal test II, 30-33 Critique on the drop measuring part of "Standard" "Directions" and pipettes II. 34-42 Micro-Wassermann technique II, 43-55 Counting suspended bacteria and other cells II 56-66 General features of technique II. 56 Staining bacteria in milk, in vaccines, in water II 58 Removing stain adsorbing salts II, 59 Method of using oil immersion lens on stage micrometer II. 60 Importance of direct bacteria-count of water and of milk II. 61 Staining drop films of c s f cells II, 62 Blood dilutions II, 63 65 Steady filling of hæmocytometer pipette by mercury plunger tube II 64, Super lability of some red blood corpuscles II, 66 Summary II. 67

In this and in the earlier article is described a simple method designed to make practically uniform drops of any required size "grow" readily in the serological or in the chemical laboratory, whereas hitherto practically accurate drops and those of a limited choice of sizes, have been produced only in the physical laboratory, or from some more or less mysterious "plant" raised in the physical laboratory The physical principles underlying the method have been more or less widely known for generations, and full general acknowledgment is here rendered to the authors of scores of papers on the investigation of those principles

2. This method of simply gauging the pipettes as required merely places in the hands of the ordinary laboratory worker the means of applying those complex component forces, or rather the resultant of them, to suit his purpose

3 Inquiries made by correspondents and circumstances observed by me since the former article indicate the need for the early publication of these further practical details, introduced by a brief exposition of the fundamental phenomena on which a trustworthy method of drop-measuring must depend. The opportunity is taken of adding a few notes on some applications of the method

4 *Fundamental physical phenomena*—A small drop of water on a paraffined surface maintains its almost spherical form by surface tension—the force exerted on the surface layer of liquid molecules by all the molecules within that layer which layer consequently behaves as if it were an elastic skin, constantly tending to compel the liquid drop to take the shape that will allow it to have a minimum of surface that shape being, of course spherical

5 The amount of force exerted by the surface of a water drop varies inversely as its radius The smaller the drop, the

more strongly is it braced together This is illustrated by the observable fact that a tiny water drop on, e g, paraffined paper is so "well knit" that its surface of contact with the paper is not noticeably flattened, while a large drop near it is so loosely knit that its weight forces it to take a characteristic flattened shape

6 If the small water drop is allowed to roll off the paraffined surface on to a horizontal clean glass surface, the water will now forsake its spherical form and will extend its edge as widely as it can over the glass Similarly, if a freshly drawn (i e, clean) glass capillary is held vertical with one end dipping into clean water, the water will rise in the bore until the amount of the force exerted by the ring of climbing edge is balanced by the weight of the column of water raised In a capillary of 0 34 millimetre internal diameter the column of cold water so raised is nearly 9 centimetres high, and it weighs about 8 milligrams Accordingly, the circumference of the ring of climbing edge being 1 07 millimetres, the capillary force between water and glass is nearly 7 5 milligrams per millimetre of contact-edge

7 Again, if a clean glass capillary of outer diameter 0 34 mm is fitted as the needle of a clean hypodermic syringe, filled now with water and held steadily vertical while its plunger is screwed slowly and steadily down till the pear shaped drop with its small end clinging by a contact-edge of 1·07 mm round the outside of the capillary tube is just ready to fall, then the weight of that hanging drop is practically the same as that of the capillary column—namely, 8 mg nearly

8 It is not surprising that the amount of capillary force exerted round the outer circumference of a tube with outer diameter 0 34 mm should be about the same as the amount of capillary force exerted round the inner circumference of a tube with inner diameter 0 34 mm. True, the weight of the drop that falls from a pipette of outer diameter 0 34 mm is, as shown on the table in par 20, only 7 6 mg And, as a larger and yet larger pipette is tried, the weight of the drop falls, as is shown in the same table, more and more from the weight of the similarly corresponding capillary column This defect is largely accounted for by the hemisphere of water left on the horizontal lower surface of the pipette as the drop falls The defect in the case of the 0 34 mm pipette is not much more than ½ per cent of the drop-weight, but with large dropping points it attains, as Guye and Perrot [1] found, 17 to 29 per cent of the hanging drop

9 In the earlier article on this subject it was pointed out that the size of a drop of a given liquid yielded by a clean pipette is determined by the outer circumference of the pipette at the level where the contact-edge of the drop clings round the glass, the pipette being held vertical or nearly so, and due allowance being made for the rate at which the drop is detached and for the temperature Strange it may seem that there should be need to enlarge on this topic and to emphasise *the importance of the outer circumference in determining the drop-size* But no less a presumable authority than the writer of the article on the Wassermann reaction in Kolle and Wassermann's large work [2] has referred variations in the drop size of a given liquid to "the temperature, the outflow opening, and the more or less vertical holding of the pipette" And another apparently authoritative German article [3] on drop-measuring also refers the drop-size especially to the size of the outflow opening Moreover, in London two "Standard" pipettes, issued a few weeks ago to workers making an extensive Widal research, were found to have outer diameters 2 1 and 2 5 mm, and drop count per c c, in carefully identical conditions, 31 7 and 25 4 respectively

10 In arranging for the manufacture of "Standard" dropping pipettes it might seem prudent to pay rather more attention to the quasi principle of the inner diameter than to the less authoritatively quoted principle of the outer diameter For glass-blowers would probably not be able to secure simultaneous equality of the two diameters, unless at considerable expense for unsuccessful work. But such prudence would tend to be disastrous to the accuracy of work done with such "Standard" pipettes

11 True the outflow opening determines the drop size when the liquid does not wet the pipette, e.g, when the liquid is mercury in a glass pipette, or when it is wa dropping through a hole freshly pierced in a paraffin pl occluding the pipette mouth [4] Also the outflow openi might be said to determine the drop size when the pipe nozzle is of material so thin that the inner diameter almost equal to the outer diameter, as in Thomas Ta pipettes [5]

12 But that the outer diameter is the diameter concern in determining the drop-size is indicated by the phys phenomena just described The indication is stron supported by hundreds of observations made in an investi tion of the drop measuring method of this paper But pipettes ordinarily used in the investigation were made ordinary glass tubing, which in its various sizes has roug the same proportion of inner to outer diameter Accordin there might be made the suggestion that the drop-size determined really by the inner diameter, though the ou diameter also thus happens in these ordinary pipettes to proportional But the following simple experiments sh that when the drop rate is duly regulated the drop-size freely independent of the internal diameter

(1) Pipettes from tubing of considerably different prop tions drawn and cut at the same gauge give practica the same sized drop Ordinary tubing of outer diame 4 5 mm and inner diameter 0 3 mm drawn and gauged Morse 74 (0 572 mm diameter) gave at 15°C 84 5 dr per c c Next, small thick walled tubing 2 3 mm in ou diameter and 0 6 mm in inner diameter drawn and gaug Morse 74 and then welded to a pipette body of convenie size gave in similar circumstances 84 3 drops per c c.

(2) A still more severe test was performed with droppin points of a large size, Morse 38, 2 53 mm diamet First, a piece of ordinary tubing drawn out and cut at th size yielded drops of 0 04 c c Next, a solid glass rod this size, supplied at the same slow rate with water trickli down its surface from a fine capillary held some 2 cm above the point, was found to yield drops of the same si 0 04 c c

13 As to methods hitherto used for making quick pipettes of required drop size, experienced workers ma have individually acquired the art of drawing pipettes give drops of one more or less uniform size, especially whe they have the use of one size of tubing and one particul burner But of formulated methods I have met only on mentioned by Dopter and Sacquépée, [6] in their compendiou volume "Widal recommends drawing out in the flame glass tube and breaking at the middle of the drawn out pa to get two equal pipettes" But in ordinary hands this metho may give very unequal results, even for a single pair o pipettes

14 *The method of this article* yields readily any number o closely uniform pipettes of any required sizes Detailed directions for making the pipettes are given in the earlie article under this head [7] To these a few hints may be added

15 Capillaries drawn from ordinary tubing 6 mm externa and 3 5 mm internal diameter are more correctly gaugable than are thicker walled capillaries they are thin enough to have their elastic outline reduced, at the moment of gauging, by moderate pressure in the gauge-hole, from a possible oval to the circle of the same circumference Then, although the drop-size is determined, strictly speaking, by the circum ference of the capillary a short distance above the gauge-hole—that is, by the circumference where the contact edge clings round the glass—yet the practically negligible error due to the taper can be reduced by reducing the taper—i.e., by gauging only nearly cylindrical portions of capillary Sizes intermediate between two gauge sizes may of course be obtained by cutting the capillary at a point between the "points" engaged by those two gauge holes The Lancashire (or Stubbs) gauge affords some sizes intermediate between Morse sizes (cf par 21)

16 For steady dropping by teat from a pipette—especially from a wide capillary with not much resistance—good control of the teat, e g by the method prescribed in par 11 of the previous article, is important

17 To provide suitable resistance in a wide bore pipette the proximal part of the capillary may be suitably stenosed

[1] Guye et Perrot Comptes Rendus cxxxv (1902) p 453
[2] Kolle und Wassermann Die pathogenen Mikroorganismen 2e Ausgabe vii 985
[3] Beckers Berliner Klinische Wochenschrift, 1913 Feb 3rd 210

[4] A Wright's multiple dilution pipette wetted inside while hot with melted paraffin and then shaken to expel all but a coating will deliver complete e g the drop of known size taken up for calibration
[5] Philosophical Magazine iv 27 (1864) 176
[6] Dopter et Sacquepee Bactériologie Paris 1914 p. 65.
[7] THE LANCET 1915 vol ii p 1243

by heating it in a Bunsen by pass flame, or better, a cone valve may be formed by dropping in stalk first a pear shaped drop of glass with a straight pointed stalk. Such a cone-valve can be easily pushed or shaken out if the pipette is to be washed out

18 The principal difficulty in the application of drop-measuring to general laboratory purposes is the fact that different liquids have different surface tensions For this fact due allowance must be made. The worker must know what error is involved in using the same size of pipette for two different liquids and he must know how to allow for errors of practical importance, either by making calculations, if he and others concerned are fond of calculations, or else by being able to adapt his pipettes to his requirements

19 The table forming par 20 worked out afresh by hand dropping at about one drop per second and at about 20° C from capillaries nearly cylindrical, affords a useful selection of pipette sizes and values Indeed, it forms as it were a keyboard on which may be found more than one set of pipettes harmonising to suit the liquids of various surface-tensions concerned in a test. The keyboard might be extended, but smaller wire-gauge holes would be expensive to standardise, and pipettes larger than about Morse 45 are not easily drawn with ordinarily available burners

20

Gauge No	Diameter in mm: Stubbs	Diameter in mm: Morse	Morse: Drops per c.c.	Morse: C mm per drop
10	(Non standardised 0 25		198·0	5 05
8	drawplate	0·29)	173·0	5 78
80	0·330	0·343	131·0	7 63
79	0·356	0·368	122·0	8 20
78	0·381	0 406	112 9	8 86
77	0 406	0·457	101·0	9 9
76	0·457	0 508	90·0	11 1
75	0·508	0·533	87·0	11 5
74	0·559	0 572	83·0	12·05
73	0 584	0·610	80·0	12 5
72	0·610	0 635	76·0	13 16
71	0 660	0 660	73·0	13 7
70	0 686	0 711	66 6	15·04
69	0 737	0 743	63 7	15 7
68	0 762	0·787	59 6	16 78
67	0 787	0·831	57 7	17 33
66	0 813	0 838	56 6	17 67
65	0 838	0 889	54 6	18 32
64	0 889	0 914	53 7	18 62
63	0 914	0 940	52·9	18·94
62	0 940	0·965	52·0	19 23
61	0 965	0 991	51 2	19·53
60	0 991	1·016	50·4	19 84
59	1·016	1·041	49 7	20·12
58	1·041	1·067	49·0	20·41
57	1 067	1·092	48 3	20 70
56	1 143	1 181	46·0	21 74
55	1 270	1 321	42 0	23 81
54	1 397	1 397	40·0	25·0
53	1 473	1 511	37 5	26 7
52	1 600	1 613	35 4	28 25
51	1 676	1 702	33 7	29 68
50	1 753	1 778	32 3	30·96
49	1 829	1 854	31 1	32 15
48	1·905	1 930	30·0	33 3
47	1 956	1·994	29·1	34 36
46	2·007	2·057	28 2	35·46
45	2·057	2 083	27·9	35 84
44	2 159	2 184	27 1	36·9
43	2 235	2 261	26 6	37·6
42	2 337	2 375	25 8	38 76
41	2 413	2 438	25 2	39 68
40	2 464	2·489	24 8	40·32
39	2 515	2 527	24·6	40·65
38	2 565	2 874	20 3	49 26
—	—	S 4	8·0	125·0
—	—	14 4	4 2	238 1

21 The table illustrates the statement made in the earlier paper that *small differences of dropping point diameter have proportional differences of drop-count* Thus though taking widely different sizes M 76 with diameter 0 508 mm has drop-volume 11 1 c.mm and M 60 with diameter 1 016 i e 0 508 × 2 mm has drop-volume not 22 2, but only 19 8 we now taking small differences Lancashire 79 diameter 0 356 which has its diameter half way between Morse 80 (0 343 mm) and Morse 79 (0 363 mm) will be found to have its drop-volume 1 (7 63 – 8 20) i e 7 9 c mm and its drop-count 1 (131 + 122) i e. 126 5 Similarly L 41 (2 413 mm) has its diameter larger than M 42 (2 375 mm) by 0 038 mm , while M 41 (2 438 mm) has a diameter larger than M 42 by 0 063 mm So L 41 will have a drop-volume larger than M 42 by 38/63 of (39·68 – 38 76), i e. by 38/63 of 0 92 i.e by 0 55 Thus L 41 has drop-volume 38 76 + 0 55 i e 39 3

22 Various organic liquid compounds and solutions of organic substances as used in serology have surface tensions less than that of water, and accordingly have their drop count from the same sized pipette greater than that of water Whereas mere suspensions as of washed red blood corpuscles or of bacteria free from albuminoids and extractives, have practically the same surface tension and the same drop-count as the suspending saline has Thus a typhoid culture washed off with saline from an agar slope without "condensation water" and immediately pipetted off, has nearly the same drop-count as saline while, if allowed to remain on the agar for an hour or so, it takes up peptone and extractives so that its drop-count factor in one hour is about 1 1 in seven hours 1 14, and in three days 1 2 The addition of about ¼ per cent of formalin to a typhoid suspension raises its drop-count factor by about 0 01, e g from 1 14 to 1 15

The following may be used as further drop-count factors —

Water	1·0	Serum, guinea pig	1·06
Saline	1·0	Cerebro-spinal fluid	1·02
Serum human	1 1	Peptone broth	1 2
Serum human, inactivated	1 1	"Standard Agglutinable Typhoid Culture"	1 2
Serum human 1 in 4 dilution	1·03	Alcoholic antigens	2 5
Serum rabbit, inactivated	1·09	Antigen" 1 in 15 c complement 1 in 24 aa	1 16

23 For exact drop-measuring the worker ought to check his technique by the simple plan of dropping into a small measure flask of about 1 c c capacity The purchasable 1 c.c measure-flasks, with long neck only 3 mm internal diameter, jam intolerably with watery liquids But a useful measure may easily be made from tubing 7 to 7 5 mm. outer diameter One end is closed hemispherical. Then at a suitable distance, judged according to the length that 1 c c of water occupies in that tubing a narrow zone of the tube is heated—e.g , by revolving it in a large bypass flame—and is then drawn to a constriction about 8 mm long and 4 mm inner diameter at its narrowest Next the tube is cut off about 1 cm above this neck and is funneled out while soft-hot with a hot pointed negative (coreless) carbon Such a neck, if kept free from grease will not jam with a drop if the measure is supported at about 30° from the vertical and if the drops are delivered on the lower slope of the funnel The measure is now filled shaken out, and "tared" wet-empty Then it is filled to near the narrowest part of the neck with water which is on the scale-pan adjusted by a fine pipette to 9/10 or 4/5 or 3/4 of a gramme—i.e , to such a fraction of a c c as will allow ready calculation of the drop count per c.c On the measure held without undue warming, a scratch is made at the lowest point of the meniscus Before heating black hot to anneal the scratch the mark may be filled with ordinary blue-black ink, dried and rubbed off level with hard smooth paper When heated the ink is fast to all ordinary solvents In cleaning the measure or the pipettes traces of greasy matter may be removed by first swabbing or even rinsing with solution of caustic alkali in "industrial spirit" and then rinsing with tap water

24 Recapitulating before considering some applications of the method—We have seen that for practical correctness in drop-measuring due attention must be given to the following six matters 1 The outer diameter of the pipette nozzle 2. The practically vertical position of the pipette nozzle 3 The drop-rate 4 The surface-tension of the liquid 5 The temperature. 6 Due checking of the technique by means of a 1 c.c. measure flask.

25 Of fundamental importance is the outer diameter of the pipette nozzle or, more correctly the horizontal length of the circular or oval ring of contact-edge where the drop clings round the glass As the pipette nozzle declines from the vertical the circle of contact becomes an elongated oval. The long diameter of the oval is proportional to the secant of the angle of declination from the vertical Now

* *Simple but effective* [illegible] *ordinary sides* will after heating face down over a Bunsen flame till quite black and rubbing while [illegible] and even treatment with 25 per cent H_2SO_4 The film ought to [illegible] on the other side of the [illegible] which during the heating ought of course to be sloped down from the flame

the secant increases very slowly at first, but more and more rapidly as a right angle is approached As the secant increases only 1 per cent in the first 8°, the oval periphery and the drop-volume will be found to increase still more slowly in that range But even at 45° from the vertical the secant increases some 16 times faster than near the vertical, and the oval periphery, consequently also the drop-size, will increase at nearly that rate

26 The importance of the drop-rate and the ways of securing uniform drop-rate have been pointed out in the two articles The actual variations of the drop-count as the drop rate varies are shown in a table on p 201 of the Proceedings of the Royal Society B, vol lxxxvi (1913) To this table may be added that a Morse 80 pipette that gave at 1 3 seconds per drop 134 drops per c c gave at 10 seconds per drop 141 drops per c c

27 The rise of temperature lowers the surface tension of water about ¼ per cent per 1° C , and consequently lowers the drop volume similarly

28 Some applications of the method may now be briefly described These were mentioned thus in the original[9] brief report to the Royal Society —

(i) Comparison of surface tension of liquids, in quantity as little as ½ cc , e g in testing the value of the meiostagmin reaction in syphilis

(ii) Measurements of various small quantities, in e g Wassermann reaction, micro-Wassermann reaction, and other complement-fixation tests Widal reaction, alkalimetry, acidimetry, and other volumetric tests, testing cultures and disinfectants, and in pharmacy

(iii) Direct estimation of cells numerically and qualitatively, in small drops of cerebro spinal fluid

(iv) Blood count, red cells and white cells, from drops of diluted blood

(v) Direct counting of bacteria in small dried drops of diluted vaccines, distilled water, domestic water, sewage effluent, diluted milk

Even at that time the method had shown itself efficient[10] in the trials that had been made of it in those applications. Between then and the outbreak of war opportunity occurred for further working out of item v ,[11] and then item iii , item ii , and incidentally and partially item iv[12]

29 For the comparison of surface tension in serum and in other liquids an efficient *stalagmometer* may be formed of a ½ c c pipette with gauged small dropping point under control of the constant-pressure apparatus described in the Proceedings of the Royal Society, B, lxxxvi , 198–202 In testing the meiostagmin reaction each serum and each cerebro-spinal fluid had its own pipette and dropping point used before and after incubation The constant-pressure apparatus together with capillary tubes, gauged internally by the wire gauge through the intermediary of a set of sewing needles, seems to form a useful *viscosometer*

30 A few suggestions may now be made on

The Application of Drop measuring to the Widal Technique

The first requisite is to have reliably though simply formed pipettes The second is to use them with reasonable accuracy in allowing for the differences in surface tension or at least in "drop count" The surface tensions of two liquids are, of course, compared by their drop-weights—i e , by the product of drop-volume and specific gravity, not simply by the drop-volumes of those liquids yielded by the same or by equal pipettes But in ordinary serological work the strength of a dilution, of, e g , serum, is reputed on the respective volumes of the ingredients before mixing Accordingly, specific gravity may be disregarded The differences in drop count by the worker s particular technique may be easily observed by dropping into a small measure flask such as is described in par 23

31 In the short list of comparative drop-counts and in the commentary on them as given in par 22 may be found several data that must be taken into account in any Widal technique using drop-measuring, especially in view of the possibility of even recognising the day-by day rise of a Widal patient's serum titre and in view of the accuracy that a careful worker may possibly attain with graduated pipettes when considerable quantities of serum are available

32 In that list the average drop count of human serum is given as 1 1 times that of water or of saline. Accordingly to make a 1 in 10 dilution when only about one drop of serum is available we might, with our one pipette washed and dried, measure out one drop of the serum, and then with the same pipette, once more washed, we might measure out not 9 but 8 drops of saline, the 8 drops of saline amounting to 8 8 times the volume of the one drop of serum But instead of all this washing we keep for the saline an M 77 pipette, for the diluted serum another M 77 or several such, and for each undiluted serum we use a dry small M 76 with body some 3 cm. long of small tubing about 3 mm. outer diameter, costing little in glass or in making, and washable if necessary

33 Then, in view of the progressive fall in surface-tension of a saline suspension remaining for some hours on an agar slope, reasonable care ought to be taken to secure uniform surface tension in the various suspensions Even if the typhoid suspension has "drop count" 1 2, and consequently drop-volume 1/1 2 that of water, we may make accurate allowance by taking of it the same number of M 74 drops (12 0 c.mm of water or 10 c mm. of suspension) or half the number of M 55 drops (nearly 24 c mm of water or 20 c mm. of suspension) It seems as easy to have three pipettes of different sizes as to use three pipettes for different liquids They ought, of course, to be marked These sizes of pipette are convenient, e.g , for setting up dilutions in powers of 2, thus We take serum 2 M 76 + saline 6 M 77, making 1 in 4 Of this into control tube and tubes 1 to 3 M. 77 0, 4, 2, 1 , and also one drop into saline 7 M 77, making 1 in 32. Of this into tubes 4 to 6, M 77 4, 2, 1 Next into control tube and tubes 1 to 6, saline M 77 4 0, 2, 3, 0, 2, 3 Finally typhoid suspension 2 M 55 into each of the 7 tubes Thus we have dilutions of 1 in 8 to 1 in 256 Or again, if we take serum 1 M 76 + saline 7 M 77, we may put into tubes 1 to 3, M 77 4, 2, 1, which when completed as above will give 1 in 16 to 1 in 512

34 As regards the drop-measuring part of the "Directions" for the "Use of the Standard Agglutinable Cultures" and the pipettes used for the technique it seems a public duty to point out some serious inaccuracies in them. For months past these directions and pipettes have been widely distributed, and apparently no modification of the "Directions" has yet been issued

35 Of the six precautions mentioned in par 24 as necessary for practical accuracy in drop-measuring, four are entirely omitted from the "Directions," and the drop-rate is only vaguely hinted at by the prescribing of "gentle pressure on the teat,' while the warning to get rid of ether would suggest the phenomenon of surface tension only to those not needing the warning "At each stage of the procedure the pipette is carefully washed and dried out with successive quantities of absolute alcohol followed by successive quantities of ether" and the ether is got rid of The fact that the recommendation of a precaution so expensive of time and of materials occurs twice with an interval of only about a hundred words suggests that the omissions were not due either to lack of space or to disregard of detail.

36 The omission of the precautions leads to serious errors in the details of the "Directions" and in the carrying out of those details with "Standard" pipettes But before considering these errors we shall mention some serious errors in the "Standard" pipettes themselves as actually observed

37 From the "Directions" it seems clear that only one size of "Standard" pipette is intended to be produced by the unpublished method of manufacture, whatever it is The only three "Standard" pipettes that have come into my hands are of seriously different sizes One, supplied to my order by authorised agents, has outer diameter 2 3 mm and drop count 28 5 per c c The other two issued along with a set of S A. cultures to workers performing an extensive Widal research have outer diameter 2 1 and 2 5 mm and drop-count 31 7 and 25 4 respectively thus differing by some 20 per cent.

38 One of the errors referred to in par 36 is that although an average serum has a drop-count per c c 1 1 times that of saline yet the worker is told that one "drop" of serum in nine "drops' of saline gives a 1 in 10 dilution This "serum-error' of 10 per cent might be allowed for if it occurred alone But it is complicated by the further errors now to be discussed

39 A second error the "culture error" results similarly from not taking into account the fact that "Standard

[9] Donald R : Proceedings of the Royal Society B vol lxxxvi 1913 p 202. [10] Donald, R : THE LANCET June 29th 1912, p 1752.

[11] Donald R : A Method of Counting Bacteria in Water THE LANCET May 24th 1913, pp 1447-9

[12] Idem : Drop-methods of Counting the Cells of the Cerebro-spinal Fluid The Relation of the Cell-count to the Wassermann Reaction Review of Neurology and Psychiatry August 1914 333-369 Folia Hæmatologica, xvii , 1913, 139-166.

Agglutinable Culture" has a drop-count 1 2 times that of serum. Thus, if the same pipette were used throughout the measuring, as is implied in the "Directions" each drop of S A Culture would have an error 20 per cent of itself

40 Further, there were mentioned above and in paragraphs 9 and 10, which may be read again in connexion with this topic two pipettes, differing in drop-size some 20 per cent and indistinguishable by the unwarned worker The use of these two pipettes as if they yielded equal drops causes the "pipette-error"

41 Now, if the larger pipette were used for the diluted serum the drop-count of which is practically that of saline, and the smaller pipette for S A. Culture, of drop-count 1 2, then each drop of the S A Culture would be 40 per cent smaller than the companion drop of dilute serum Even this "culture pipette-error" of 40 per cent might be allowed for But it is complicated by the equal probability that the smaller pipette might happen to be used for the dilute serum and the larger for the culture by the same unwarned worker on another occasion, with the effect that the drop of dilute serum would then happen to be of the same volume as the drop of culture, thus making the "alternate culture pipette error" *nil* The application of the 40 per cent correction to all the results would make on these alternate results a 40 per cent error So even the "culture-pipette-error" would baffle correction

42 The reader will understand how the "culture pipette-error" is complicated also by the "serum error" or by a "serum pipette-error" produced by using these two pipettes for diluting the serum with saline And he will understand that the three pipettes described here, of three different sizes, represent almost certainly, at least a good many other pipettes of those respective sizes made from the same lengths of tube

Micro technique of the Wassermann Test

43 A micro technique of the Wassermann test with quantities just 1/10 of those used by Fildes and McIntosh[13] was used in a series of 263 serums and cerebro-spinal fluids just after the same samples had been tested by Dr Fildes with the full scale technique The micro-technique may seem in places rather complicated But the reader must remember that it was not composed *de novo* to suit the peculiarities of drop-measuring but was a faithful "transposition" of a well-established technique It was intended to form a careful test of a tenth scale method against the ordinary scale method and at the same time a test of the adaptability of this drop-measuring method The micro-test agreed with the macro-test in every case even quantitatively Such agreement of a micro- with a macro-test is to be expected if the quantities are justly measured The micro-test proved itself to be not only quick and reliable but also convenient and even indispensable in doing private practice tests when the sample sent was small and in, e.g., testing with four different antigens the small remnants of serum from the full scale tests The great saving of reagents and of incubator space would often be of importance

44 The test tubes to accommodate the total volume of 0 15 c c are about 6 × 1 c c outside measurement They are conveniently hung in a single row of a dozen by their lip-flange which ought therefore to be 2 or 3 mm wide The holed upper board of the tube stand is covered with a strip of stout brown paper pierced with a spike and then with a test tube which thus makes its own well fitting socket allowing well controlled shaking of a whole stand of tubes The lower board of the stand is covered with white paper so that the little mass of unhæmolysed red cells can easily be seen from above (Colourless flocculi as in the Widal test are best seen by similar side light from above against a black ground) The cover of the upper board may otherwise be made of white non inflammable celluloid mat on its upper surface for pencil marking with punched holes slit radially to give a spring grip

45 The serum is inactivated in a clean water bath in Pasteur pipettes 5 mm outside and 3 5 mm inside diameter small enough to prevent the column of serum from breaking and flowing about in the tube After inactivation the capillary is cut at Mor e 76 This gauge corresponding to 90 drops per c c of water will correspond to about 100 drops per c c. of serum the drop-count of which is on the average 1 1 times that of water

46 The technique of the Wassermann test as given by Fildes and McIntosh in their recent paper in *Brain*, referred to in par 43 is closely followed, the actual quantities mentioned there being merely reduced to one tenth Reference to that paper will accordingly elucidate obscurities due to the necessary brevity of this account.

47 *Standardisation of amboceptor (only occasionally necessary)* —In nine test tubes we have to put up micro-quantities of amboceptor ranging from 0 00001 to 9 times that First we take 0 01 c.c —i e. 10 c mm of amboceptor, choosing the pipette thus In the table in par 22 rabbit serum is found to have drop count 1 09 that of water So the pipette required would give a water-drop of 10 × 1 09—i.e, 10 9 c mm We choose the nearest to this M 76 with drop-volume just over 11, and we put 1 M 76 of amboceptor into 1 c.c of saline, making a 1 in 100 dilution, with drop-count practically the same as that of water Of this 0 1 c c, i e 10 M 77, goes into 0 9 c c saline, i e into 1 c c of saline from which 10 M 77 have been taken with the M 77 pipette kept for saline, making amboceptor 1 in 1000 Of this we put into the tubes M 77 1 2 3, 8, 9, and then equalise with saline M 77 8, 7 6, 1, 0, thus making 0 09 c.c in each tube

48 Then of complement 1 in 2 we put 0 01 c c.—i e, practically 1 M 76—into each tube The slight further excess in complement is here of no consequence Finally, of 5 per cent. suspension of washed sheep corpuscles 0 05 c c, i.e 2 × 0·025 c c, i e 2 M 54, goes into each tube The total in each tube is now 0 15 c c

49 Incubate for 20 minutes at 37° C For these small tubes the incubator suffices. Note what is the micro-minimal hæmolytic dose of amboceptor (m M H D Amb) thus required for 0 05 c.c. of 5 per cent sheep corpuscles deposit Three m M H.D Amb is used in the Wassermann test

50 *Standardisation of complement (daily)* —Of complement 1 in 24 we have to put into 9 tubes the following fractions of a c c —

0·01 0·0125, 0·05 0 0175, 0 02, 0 025, 0 03 0·035, 0 04

It will be seen that the common increment is 0 0025 for the first five and 0 005 for the last five, considering 0 02 twice Indeed, the quantities are multiples as following of 0·0025 c c — 4 5, 6, 7, 8, 10, 12 14, 16

Now even drops of 0 005 c.c are rather small for convenient use The nearest multiple of 5 c mm that we have in our table is 2 5 times 5, i e, 12 5 c mm. i e M 73 So we dilute to 2 5 times weaker, i.e to 1 in 60, and we put into the last five tubes

M 73 — — — — 4, 5, 6 7 8

Then as the common increment in the first four tubes is ½ M 73 of 1 in 60 dilution we dilute the remainder to 1 in 120 so that we may make the common increment M 73 of in 120 Of this new dilution we put into the first four tubes

M 73 4 5, 6 7, — — — — —

To equalise add saline

M 73 4 3 2, 1, 4 3 2, 1, 0

—making up 8/60 c.c, i e 0 1 c c. in each tube Lastly, we add of 5 per cent corpuscles with 3 m M H D Amb 0·05 c.c i e 2 × 0 25 c c., i e 2 M 54 in each tube After incubation for 20 minutes at 37°C we note the tube with least complement that has complete hæmolysis For the Wassermann test we use 2 5 m M H D C made up to 0 05 c.c in each tube As McIntosh and Fildes point out, if the m M H D C is found in the tubes corresponding to 0·0175 0 02 0 025 or 0 03 of the 1 in 24 dilution, then the 2 5 m M H D C for the Wassermann test will be obtained in 0 05 c c of 1 in 27 1 in 24 1 in 19, or 1 in 16 dilution respectively We reject any weaker complement

51 *Arrangement for the actual Wassermann test of 20 sera* each requiring 5 antigen tubes and one control without antigen, i e 120 tubes in all The micro-M H D of amboceptor being, say 0·00003 c c of amboceptor and 3 m M H D Amb going to each tube we shall need 120 × 0 00009 i e 0 0108 c.c amboceptor or 10 8 c mm Now since rabbit serum has its drop-count 1 09 times that of water (see table in par 22) the pipette that would give a serum drop 10 8 c mm would give a water drop 10 8 × 1 09, i e 11 9 c mm The nearest is M 73, giving a water drop

[13] McIntosh J and Fildes P Syphilis from the Modern Standpoint London 1915 Fildes P and McIntosh J The Wassermann Reaction and its Application to Neurology Brain xxxvi November 1913 [illegible]

12 05 mm , only 1 per cent too large The total volume of sensitised 5 per cent r b c suspension required is 120 × 0 05, i e 6 c c , made up of 0 3 of the centrifuged deposit and 5 7 c.c., saline, or of 1 5 c c. of 20 per cent r b c suspension and 4 5 c c saline Accordingly we dilute 1 M 73 of amboceptor in 4 5 c c saline add 1 5 c c of 20 per cent r b c , and mix at once

52 While the complement is being standardised antigen is prepared for 100 antigen tubes They will require 100 × 0 05—i.e , 5 c c. of 1 in 15 antigen dilution—made up of 0 33 c c mixed heart and cholesterin antigen and 4 7 c c saline added rapidly The antigen may be measured as 33 M 54, M 54 giving 40 water drops, and therefore 40 × 2 5 i e , 100 drops of antigen, per c c Of course, 1/3 c c of antigen is a quantity that could well be measured by a graduated pipette—one kept for antigen or else, if used for other liquids, well cleaned immediately after antigen (But if the M 54 pipette after measuring antigen is shaken and allowed to dry partly and then roughly rinsed with water, it is in a suitably greasy condition in which it will deliver of the greasy antigen dilution 50 drops per c c And then, if the volume of antigen were made 0 06 instead of 0 05, i e if the total 5 7 c c were taken instead of 4 7 c c , as the volume of the diluent saline for 100 doses, then 3 M 54 would deliver correctly the dose 0 06 In compensation 1 c c less of saline could be used in the complement by putting the 0 25 of complement into 4 75 c c of saline The dose of diluted complement would then be 5/120 c c , i e 42 c mm of 1 in 20 complement, with drop-count nearly the same as that of water This volume, 42 c mm , could be conveniently delivered as 2 M 56 But this plan of distributing the antigen and the complement separately is surpassed by the plan of combined distribution as described in the next paragraph)

53 If the complement titre shows the m M H D C to be 0 02 c c of 1 in 24, then, taking for the actual test 2 5 m M H D C i e. 2 5 × 0 02, i e 0·05 c c , we shall need for 120 tubes 120 × 0 05 i e 6 c c of complement 1 in 24 i.e 5 75 c c saline + 0 25 c c complement If the requisite complement, 0 25 c c , is measured by drops we may take 24 M 76 of complement since the drop-count of guinea pig serum by M 76 is 90 × 1 06, i e. only 95 4, not quite 100 drops per c c But so large a quantity as 1/4 c c can be well measured by a graduated pipette The dilution of antigen and the complement may, as recommended by McIntosh and Fildes, be mixed together immediately before distributing in a total quantity of 0 1 c c , i e 4 M 51 or 5 M 55 per tube

54 The schema of the test, given below, needs little further explanation From each pipette of inactivated serum, cut, as described in par 44, at M 76 one drop each is put into tube 1 and tube 6, also, with 15 M 77 of saline, into a third tube The contents of this tube are drawn into an M 77 pipette and are distributed to tubes 2, 3, 4, and 5, as indicated in the schema The rack of tubes ought to be shaken after each ingredient

render the film adherent in spite of wetting The small circular drop-films, suitably stained and covered, form permanent preparations In "blotting" all rubbing ought to be avoided , the blotting paper ought to be pressed down with a soft pad of cotton wool in surgical gauze In mounting, the cover glass is pressed down on a minimum of clear soft paraffin gently warmed Thus mounted and stored away from light, delicate stains such as pyronin methyl green last well Seccotine may be used to "ring" the cover glass

57 Wet-fixed preparations may be mounted in soft paraffin by using ligroin or heavy petroleum ether after or instead of xylol and by gently pressing on the preparation thus wet the cover glass with a drop of soft paraffin melted on it

58 Details of treatment in counting bacteria depend on the nature and on the bacterial richness of the liquid. Milk, for instance, needs dilution to yield a tractable drop-film 3 Morse 80 drops of milk, i e 3/183 c.c., diluted in 1 c.c. of germ free water, gave 164 drops per c c Three drops of this dilution gently dried, heated, rinsed with xylol then collodioned and stained with carbol fuchsin as described in par 59, showed 4000 bacteria per drop Vaccines similarly need successive dilutions, by mixing one drop, e.g , M 80, in a 1 c c capsule of fresh distilled autoclaved water, and dropping without delay On the other hand, in the case of water fresh from a filter a couple of drops may be successively dried on the same spot

59 Stain adsorbing mineral matter, such as calcium carbonate, in dried water drop-films ought to be dissolved with very dilute HCl, one tenth per cent , before rinsing All water drop-films ought to be wetted with 10 per cent alcohol just before dropping on carbol fuchsin containing an extra 10 per cent of alcohol, which after a minute or so ought to be washed off with 10 per cent alcohol All water used in stain or in treatment until staining is finished ought to be bacteria free, i.e , either fresh distilled or else fresh distilled and autoclaved before keeping Finally the delicate drop films are blotted, without rubbing, and mounted, as described in par 56 When desired, staining may be by Gram stain decolorised with 95 per cent alcohol, or by carbol fuchsin for acid fast bacilli

60 In the drop-film counting of bacterial suspensions the actual area of the drop film can be easily calculated from the diameter as observed by the verniers on a mechanical stage , and for a conveniently small field the area corresponding to the square eyepiece diaphragm may be observed by viewing with the oil immersion lens the squares on a hæmocytometer slide covered with a tiny square of cover glass mounted in water

61 It may be noted that such direct and prompt counting of bacteria in water or in milk affords a valuable test either of the efficiency of a water filter or of the cleanness of a milk supply Moreover, the drop-method seems to be the only method of depositing accurately and neatly on a slide a known volume of suspension

55 *Schema of the micro Wassermann test showing the six tubes belonging to one serum All the quantities are in c c*

Tube	1	2	3	4	5	6	Controls. 7	8	9
Serum	0·01 (1 M 76)	0 005 (8 M 77)	0·0025 (4 M 77)	0 0012 (2 M 77)	0·0006 (1 M 77)	0·01 (1 M 76)	—	—	—
			i e of 1 in 16 dilution						
or Cerebro-spinal fluid	0·02 (2 M 77)	0·01 (1 M 77)	0·005 (4 M 77)	0·0025 (2 M 77)	0·0012 (1 M 77)	0·02 (2 M 77)	—	—	—
			i e of 1 in 8 dilution.						
Antigen 1 in 15 with complement 1 in 24	0·1	0 1	0·1	0·1	0 1	—	0 1	—	—
	(4 M 51 or 5 M 55 in each tube indicated.)								
or Saline with complement 1 in 24	—	—	—	—	—	0·1 (4 M 54)	—	0 1 (4 M 54)	—
Shake at once ; then incubate for one hour at 37° C									
Mixture of amboceptor and corpuscles	0·05 (2 M 54	0·05 2 M 54	0 05 2 M 54	0·05 2 M 54	0·05 2 M 54	0·05 2 M 54	0·05 2 M 54	0·05 2 M 54	0 15 6 M 54
Shake. Incubate for 20 minutes at 37° C in incubator Then read the results, or allow to stand for one hour at room temperature without shaking									

56 *In counting suspended bacteria and other cells* the processes have general features in common Several small drops of convenient known size are deposited in a group on an ordinary slide then dried, fixed by heating, collodioned by immersing while warm and dry in collodion of 1/10 B P strength, drained, dried, and heated to expel alcohol and to

62 Cell suspensions such as cerebro-spinal fluid and diluted blood may be stained with dilute Leishman stain for 7 to 15 minutes, or more if red cells are to be strongly shown up Rinsing for a couple of minutes with very dilute, 0·01 per cent., acetic acid brightens the eosinophilia [14] Bacteria

[14] Muir and Ritchie's Bacteriology 1913 edition p 116

sent in cerebro-spinal fluid may be stained as desired. r details of drop-methods of counting the cells in cerebro-nal fluid the reader may consult the original paper[15] scribing the method and the results published as a tributary the extensive work on parasyphilis by Dr Head and Fearnsides with Dr Fildes and Dr McIntosh

63. Blood dilutions may be conveniently made with a emocytometer pipette or other capillary pipette whose lume *contained* has been determined by weighing first dry ipty and then filled with water to the mark. The figures the hæmocytometer pipette indicate, apparently, only oportionate volumes of bulb and stem

64 The ordinary method of filling by mouth suction is pleasant, especially with a public ivory mouthpiece, and is certain in its results except in expert hands. When once e bore is filled beyond the mark expelling back the eniscus to the mark leaves still on the walls of the wetted rt a considerable portion of the very slender column of ood But *considerable precision can be attained by a ercury plunger-tube with stop-cock*, even using only one nd the other hand yielding the blood. For the mercury unger tube a piece of clean dry tubing 12 to 15 cm long id 1½ to 2 mm bore is opened out slightly funnel shaped each end One end is tightly plugged with grease-free tton wool, the tube is filled about two thirds with clean ercury, and the other end is similarly plugged A short rubber be about 3 cm long is fitted to join one end of the tube to e side of a tiny brass stop-cock, such as is used for model gines, the other side being joined to the blood pipette by nother short rubber tube The suction of the falling ercury can be precisely regulated by the slope at which e mercury plunger tube is held As the pipette gets filled near the mark the suction is slowed by lessening the slope, nd the moment the mark is deliberately reached the stop-ock is shut The pipette point is wiped with e g, tissue aper, and the contents are washed out by repeatedly rawing up and expelling saline solution which has been reviously measured into a small stoppered cylinder

65 The drop-film method of counting the cells in diluted lood has some advantages over the counting chamber ethod A differentiating stain such as Leishman's may e used. And the cells may be not only counted but also xamined with suitable powers and proper lighting More ver, as soon as the drop-films are dried the further stages nay be postponed at the worker s convenience. As regards he degree of dilution suitable for counting either or each of wo methods may be followed (1) To make the drop-film lensity such as 5 or 10 c.mm blood in 10 c.c. saline this or normal blood will give in each of the drops 30 to 60 leuco-ytes and some 20 000 red cells The red cells may be com puted by observing the number of times that the field liameter is contained in the drop-film diameter, squaring he number to get the number of fields in the drop-film and ence computing on the content per average field. (2) To make the dilution say 100 to 200 times weaker so that the whole number of red cells may be counted through and com puted from

66 A phenomenon that led me to make some investiga tions not completed when the war broke out is the high degree of lability sometimes found in some of the red cells causing not only a considerable loss in drying a film but also on more than one occasion lysis of many of the red cells under one s very eye in the counting chamber illuminated by ordinary electric bulb This lability is perhaps too little mentioned Apparently it is prevented by the addition of a small amount of osmic acid solution to the dilution (and probably by other fixatives) The osmic acid, as Gustave Mann pointed out increases the ability of the red cells to be stained strongly by fuchsin so that a rapid easy count of them can be made even with an 8 mm lens This staining is especially applicable to a through count of a high dilution drop-film

67 *Summary*—In the two articles under this heading is described a simple method (communicated to the Royal Society in 1912) of gauging ordinary pipettes drawn from glass tube The method is designed to make practically uniform drops of any required size "grow readily in the serological or in the chemical laboratory, whereas hitherto practically accurate drops, and those of a limited choice of sizes, have been produced only in the physical laboratory or from some more or less mysterious "plant" raised in the physical laboratory Detailed directions and an extensive table of drop-volumes corresponding to various sizes of dropping point afford the means of making this method of drop-measuring generally applicable to the accurate measure ment of small volumes of liquids It is pointed out that the action of surface tension tends to make drop-measuring accurate and other methods of *delivering* small volumes inaccurate. Also there are outlined various applications of the method in serology and in counting directly bacteria and other cells

Incidentally are described a simple method of rendering almost indelible ordinary blue black ink writing on slides, a method of mounting pyronin methylgreen stained sections permanent in soft paraffin, and a method of drawing blood with precision into a hæmocytometer pipette.

[15] Donald J J Drop-methods of Counting the Cells of Cerebro-spinal Fluid; The Relation of the Cell-count to the Wassermann Reaction, Review of Neurology and Psychiatry August 1915 pp 333-369 Head H and Fearnsides E G The Clinical Aspect of Syphilis of the Nervous System in the Light of the Wassermann Reaction and Treatment with Neosalvarsan Brain vol xxxviii, September 1915 pp 2 1 0

A NOTE UPON THE EMPLOYMENT OF BLOOD TRANSFUSION IN WAR SURGERY [1]

BY EDWARD ARCHIBALD, MD,
MAJOR, CANADIAN ARMY MEDICAL CORPS

JUDGING from my own observations, the value of trans fusion lies chiefly in the quick supply of oxygen to the cells of the exsanguinated person It is remarkable to see the im mediate return of colour in the face of the blanched patient, and, moreover, it is now generally admitted that the transfused red cells remain alive and carry on normal function

With regard to the technique, my own preference before the war was for the Kimpton tube, and this was used five times in four cases There is, however, another method, the citrate method, recently brought forward, which seems to me peculiarly suited for easy adoption in Army work Indeed, a chief purpose of these remarks is to call attention to the fact that we have in the citrate method a means of transfusing blood so simple that it can be done by a junior medical officer with the instruments at hand in any clearing hospital, and at the same time that it takes to give an intravenous saline I have used the method on four occasions The vein of the donor is exposed under novocaine, the end of an ordinary glass medicine-dropper inserted into the distal end of the vein, a bandage having been tied round the arm above, and the blood allowed to flow into a glass graduate. An assistant holds the vessel, in which 1½ drachms of a 10 per cent solution of sodium citrate in distilled water has been previously placed and stirs constantly with a glass rod After 8 ounces have been taken, a further 1½ drachms of the solution are added, that being the proportion of citrate advised for each quantity of 8 ounces (The original recom mendation is 5 c c of a 10 per cent solution of sodium citrate to 250 c c of blood, or 30 c c of a 2 per cent solution to 300 c.c of blood) Thereupon, the vein of the recipient being exposed, and an ordinary cannula provided with a short piece of rubber tubing being inserted, the blood is injected with an ordinary 4-ounce glass syringe There would appear to be no danger of clotting Nothing could be more simple One can deal with the blood as one would deal with saline

We are yet naturally, uncertain as to the results Un doubtedly the procedure if extensively tried at the front, as I venture to recommend will in many cases accomplish nothing, or too little We have to consider above all the coincidence of shock, for which, as has been shown recently by Libmann and Ottenberg transfusion of blood is of little, if any value The recent work on shock seems to prove clearly enough that that condition is due to no primary loss of power in the vaso-motor centre, nor to lack of blood, but rather to the displacement of a critical amount of blood from the arterial to the venous side of the circulation and its retention to a large extent on that side Consequently, a transfusion of blood may do no more good than the infusion of an equal quantity of saline, and often enough neither

[1] This paper was submitted for publication last April.

can work any lasting benefit On the other hand, cases of shock complicated by severe hæmorrhage might be tided over by a transfusion of blood and recover from their shock when they otherwise would not

Where a severe infection is present, particularly if it has become a septicæmia, one can hardly expect often to save life by a transfusion One of my cases, with gas gangrene of the thigh, exsanguinated and in very bad general condition, was sufficiently improved by a transfusion to stand an amputation in the upper third, but he died a day later from extension of his infection Such a type of case would yield many disappointments It might be questionable, also, whether a very large effusion of blood into the thorax should indicate a transfusion Probably not, as such patients so rarely died from hæmorrhage pure and simple At most one might do it with coincident aspiration of blood from the thorax and insufflation of oxygen for compression of the lung as we did at the base after the lapse of a week or so With regard to the abdominal cases, in which so often operation discloses a belly full of blood I entertained, from *a priori* considerations, high hopes that transfusion would save many lives But with observation of the cases of others, and of post mortems and with the study of my own cases (at present numbering only some 35, it should be said) I have become gradually impressed with the belief that shock kills more often than pure hæmorrhage, and that, even when a considerable amount of blood is found in the cavity the later death, if it occurs, is often more directly the result of the shock than of the loss of blood It falls to be said that some of those with whom I have discussed this question, whose experience is much greater than my own, maintain that hæmorrhage, rather than shock, is the great cause of death in the first day or two after an abdominal wound. If their opinion is correct, transfusion is all the more indicated If not, transfusion is still indicated, but disappointments must be expected And in either case, if we are to diminish the still high mortality of the abdominal cases, transfusion I think, is the first and most promising means that demands trial

Four transfusions in three patients were done last autumn in a general hospital—all at the base—for secondary hæmorrhage of very severe degree Of these, two were done by myself and two by a colleague (Major Hill), who kindly allows me to use his notes Finally, five more have been done in a clearing hospital at the front within the last three months I append notes of some typical cases of transfusion of blood with which I have had to do

CASE 1 —Very extensive foul shell wound tearing through the posterior thigh muscles About the eighth day a hæmorrhage of moderate severity, controlled by packing Three days later a second and very grave hæmorrhage, leaving the patient almost pulseless Intravenous saline, which did but little good Under anæsthetic impossible to find bleeding point because of cessation of bleeding Pulse disappeared entirely on the table, and patient was apparently *in extremis*, whereupon 250 c c of blood were transfused. The effect was quite remarkable, some colour reappeared in his cheeks and ears and the pulse was restored He rallied well, but ran a very high temperature for a week (103° to 105° F), which was ultimately found to be due to a streptococcus septicæmia Then he had a third slight hæmorrhage, easily controlled, and on the following day a fourth severe one He was again reduced to an almost pulseless condition, was blanched, and was quite lethargic An intravenous saline of nearly 2 pints did not alter his condition a whit, but a transfusion of 700 c c of blood (20 ounces) an hour later worked a most remarkable change, some colour returned immediately, his pulse grew fairly strong though rapid, he became bright again and demanded things with all of his former irritability, and, in fact, one could hope with some reason that he would pull through Unfortunately, during the night he had a fifth small hæmorrhage, became extremely restless, and died some 20 hours after the last transfusion, largely from hæmorrhage, partly from sepsis Necropsy showed a tear in the profunda femoris It had never been possible to catch it bleeding

CASE 2 —A boy, with a shell wound in the shoulder the fragment having gone right through the deltoid inwards, there had been very little infection and the wound was healing well when, nearly three weeks after the injury he had a most severe hæmorrhage On the operating table he was quite pulseless and absolutely blanched An intravenous saline did no good A transfusion of 750 c c, or 24 oz of blood was then done, with the same gratifying results The wound was then opened and an opening in the terminal portion of the axillary artery found The artery was ligatured The boy made a splendid recovery, and in about 10 or 12 days was discharged to England It is tragic to relate that he was one of those who went down in the *Anglia*

Of the five cases occurring in a casualty clearing hospital, notes of two are given as follows

CASE 3 —Wound of abdomen from fragment of shell Admitted at 3 30 P M, having been hit two or three hours previously He was very pale, the pulse was 76 and very weak His blood pressure was 75 systolic and 55 diastolic (Tycos instrument) He was in great pain and was obviously suffering from severe shock. The wound of entry was in the mid left rectus two inches above the umbilicus, and the missile could be felt under the skin in the right loin posteriorly Operation was begun at 4 P M There was found a large amount of blood in the pelvis and in both flanks The root of the mesentery in its upper part was infiltrated with blood The missile had perforated both walls of the stomach near the greater curvature Bleeding seemed to have stopped and its source could not be determined, but was thought to be from the gastric vessels The tears were sutured, and at the close of the operation he was given 17 oz of blood to which had been added 3 drachms of a 10 per cent solution of sodium citrate in the manner already described During the operation the patient had become pulseless The blood transfused made his pulse palpable, and, indeed, sufficiently so as to give one hope that he would rally Yet it did not restore his colour to any noticeable extent After this temporary improvement, which lasted some three or four hours, his pulse failed rapidly and he died at midnight, about 12 hours after being hit and seven hours after operation At the post-mortem examination it was found that no fresh bleeding of any extent had occurred A wound of the second portion of the duodenum on its postero lateral surface and a ragged perforation of the lower pole of the right kidney without injury to the renal vessels had been overlooked at the operation It seemed reasonable to conclude that the cause of death, while in part hæmorrhage, was largely shock The total amount of blood lost did not by itself appear to be sufficient to account for death

CASE 4 —Admitted at 8 45 A.M, on April 6th, 1916, suffering from very extensive wounds of the left knee, the right foot, and the right thigh He had lost a great deal of blood and was also in shock, with pulse a mere flicker running 140 approximately, and blood pressure 45 systolic diastolic being unobtainable Rectal saline with coffee and brandy failed to improve his condition An intravenous saline with gelatine given at 1 30 P M brought his blood pressure up to 85 systolic and 45 diastolic At 3 P.M his systolic pressure was 75, and at 4 P M it was 72 while diastolic was 60 At 4 30 P M the left leg was amputated above the condyles, and the vast wound in the middle of the right thigh was cleaned by cutting away all necrotic muscle It was badly contaminated with straw and soil At the close of the operation the pulse had disappeared at the wrist respirations were rapid and he was very pale The citrated blood obtained the night before for another case and not used had been preserved, and this was now injected into this patient's vein, about 16 oz. in all It brought back quite a pink colour to the face and restored the pulse, which was counted to 130 He rallied fairly well and one felt able to hope for recovery, but gas gangrene declared itself the next afternoon in the right leg and advanced so rapidly that operation was out of the question He died at 6 10 A M on April 8th, about 48 hours after the injury

Of the eight patients one was saved by transfusion, and one recovered after alarming symptons due probably to isoagglutinins in the donor's blood, in spite therefore of the transfusion Our efforts in the other six patients were defeated, twice by the repetition of hæmorrhages with the coincidence of sepsis twice by gas gangrene, and twice by the preponderating effect of shock. Only desperate cases have been chosen

It may be urged that 16 oz is an insufficient quantity to transfuse This may be so Yet I cannot but think that a pint of fresh blood ought to be sufficient to tide the man over the immediate danger of a large hæmorrhage as indeed it clearly did in certain of our patients If severe sepsis and shock complicate the picture, it is doubtful whether a larger quantity of blood would accomplish more.

In the first three patients those with secondary hæmorrhage treated at the base the blood was given by the medical officers who were keen to volunteer It was found that the withdrawal of 16 oz affected them not at all Twice however 20 and 24 oz were taken, and then the officers concerned did experience for a couple of days a feeling of lassitude and easy fatigue, although neither was obliged to go to bed or even give up his service. At the front the volunteers for the four transfusions were got without the least trouble There will always be more than enough men willing to give blood

for the sake of a badly wounded soldier The question, of course, has a military side to it Will the volunteer be disabled from duty? The answer from the medical side can, in my opinion be a reassuring one The withdrawal of 16 oz., or even of 20 oz, should not lessen a man's physical capacity for more than two or three days If one draws from the class of slightly wounded, who are kept in the hospital in the expectation of sending them back to duty in a week, as was done with the first two, there will be ample margin for complete recovery, and the requirements of the military will be satisfied It should be said that one of the volunteers was sent down to the base for a short rest by the medical officer in charge because he complained of attacks of faintness some days after the transfusion whereas he had not made the complaint at first This I thought, was obviously functional If, however, a week's leave were allowed to volunteers as a sort of reward the total loss of time to the military would be very small, and we would hear nothing of any such functional complaints The last two chosen were 'liers' who were going to base next day One had a sprained ankle, the other had a loose internal semilunar cartilage This is perhaps the better plan—*to choose such* as are going to base next day rather than the slightly wounded who are to be kept for return to their units in a week.

THREE CASES ILLUSTRATING THE FUNCTIONAL CONSEQUENCES OF HEAD-INJURIES

BY T E HARWOOD B.A. OXON, M B CH B EDIN,
RESIDENT OPHTHALMIC OFFICER, THE KING GEORGE HOSPITAL, S E

THE three following cases may possibly be of interest as illustrating the functional consequences of head injuries In the first there was undoubted destruction of brain substance, in the second there was a fracture of the skull but no definite brain lesion while in the third there was neither a fracture nor, as far as is known any destruction of brain tissue

CASE 1—Private —— aged 24 was wounded in Gallipoli on July 19th, 1915, a rifle-bullet entering the left side of his neck and coming out above the right eyebrow He was unconscious for about a quarter of an hour "vomited" blood at intervals for 24 hours, and had pyrexia for several days, the highest temperature recorded being 104 4° F When he was admitted to this hospital on Sept 1st, there was a marked thrill beneath the upper part of his left sterno-mastoid and a roaring murmur widely transmitted could be heard there An arterio-venous aneurysm probably between the internal jugular and the internal carotid was diagnosed, and other evidence led to the conclusion that there was damage to the right frontal lobe, the right optic nerve and the left motor cortex in the face region. The visual acuity of the right eye was *less than 6 60* and there were many opacities in the vitreous

The patient was sent away to the country and when he returned in January 1916, was very depressed was sleeping badly and complaining of constant headache, frequent giddiness, and *palpitation The question* of tying his carotid was discussed and a neurologist suggested that his right visual field might be of interest His visual acuity was now R, 6 18 L, 6 9 Under atropine with R +1 50 S +0·375 C vert and L +1·50 S +0 125 C vert he could read 6 6 with either eye and he left the dark *room* wearing this correction in a temporary form The spheres were changed as the effect of the cycloplegic passed off and the necessary sphere for permanent wear was found to be +0·25 for each eye In a week's time he looked quite different, and was sleeping better his skin was healthy his giddiness had gone and he had very little headache His palpitation soon disappeared and he left hospital on March 27th quite cheerful and without having had his carotid tied though the signs of his aneurysm were as marked as before

Small as the defect was the astigmatism of the right eye was three times as great as that of the left If a 0 25 C had been ordered for each eye the patient would probably in his neurasthenic condition have found the correction quite intolerable after a few days as it *would* have left an eighth of a dioptre of direct astigmatism uncorrected in the right eye and have produced an artificial indirect astigmatism of the same amount in the left a most pernicious form of asymmetry

CASE 2—Sergeant ——, aged 28, was wounded on the right side of the head in Gallipoli on August 9th, 1915 He was unconscious for two days On August 16th he was trephined in Egypt, and came to England in September He was invalided for Home Service but at his own request was sent to Salonica in March, 1916 On the voyage his headache, which had been frequent since he was wounded, became constant, there was a swelling at the site of the wound, and he had a "fit" As soon as he landed he was taken to hospital, where the swelling was opened up, pus evacuated, and a small depressed fracture found When admitted to this hospital on May 22nd, 1916, he was *complaining* of frequent headache, double vision at night, palpitation, *head noises*, and numbness of both feet He could only read for a few minutes at a time He was very anxious to be trephined again but it was decided that his eyes should first be examined His visual acuity was 6/9 with each eye, and under homatropine and cocaine with R +0 25 S +0 50 C vert and L +0 25 S +0 50 C 75 *do* could read 6/5 He left the dark room wearing the cylinders alone With them he found that he could read as long as he liked when the mydriatic had passed off, and he had no diplopia, giddiness, or head noises, and very little headache In a week his symptoms began to recur, and + 0 25 S − 0·50 C 15 di was *substituted for each eye* with some temporary benefit After a few days R − 0 375 C 15 di and L − 0 50 C 15 di were put into his frames With these he was absolutely comfortable, could read as long as he liked, had no head ache even at the theatre, and a permanent pair was ordered a month later when he returned to duty He still wished to be trephined, as he said glasses would interfere with his work (he is a stonemason)

CASE 3—A wet sandbag weighing about 40 lb, fell from a height of 8 feet on to the head of Sergeant-Major —— aged 28 while he was lying down in his dug-out in Gallipoli on Nov 24th, 1915 He was removed to Lemnos complaining of intense headache and giddiness A week later he developed a bilateral internal strabismus with *constant diplopia and* head noises He was considered to be suffering from cerebral tumour or specific basal meningitis, while on the voyage home the diagnosis was changed to disseminated sclerosis or neurasthenia When admitted to this hospital on *Jan 1st 1916* he could not move either eye outwards beyond the middle line of the orbit, the up-and-down movements were poor, and there was slight lateral nystagmus He had not been able to read or stand since his accident His visual acuity with each eye was less than 6/60 but with +0·375 C vert and L + 0 25 S + 0 25 C 75 do he could get 6/5 with either eye, had perfect binocular vision, and could read ordinary type comfortably Within a week he could stand without support and walk with the aid of a stick, while his headache, head noises, and giddiness had ceased Whenever he took off the glasses his strabismus and diplopia returned instantly Two other combinations were *tried but failed to relieve* his symptoms When *ordering* his permanent glasses two months later just *before his dis* charge from the hospital, I foolishly added a + 0 125 sphere for the right eye While this, if correct, would help him greatly, if wrong it would probably ultimately upset the whole thing by introducing an artificial *myopic element*, though he would be almost certain to persist that his glasses were perfect I mention this to emphasise the accuracy that is necessary in ordering glasses for the purpose of relieving the functional symptoms of neurasthenics This patient was seen by all *four ophthalmic surgeons* on the staff of the hospital

For permission to publish *these cases* I am indebted to Lieutenant-Colonel R J C Cottell, R A.M C, commanding the King George *Hospital and to my various chiefs* for much help and encouragement

ANTHRAX IN THE SHAVING BRUSH—IN THE LANCET of Jan 1st 1916 we published the history of some cases of anthrax in man traceable to infected shaving brushes On the facts becoming known action was taken at once to secure so far as possible the withdrawal of the brushes from the market Risk of further *infection from* a consignment of shaving brushes of which one had been shown to have conveyed anthrax has again been avoided by the promptitude of the *Local Government* Board Parcels of the brushes had been sent to various parts of the country, some 50 gross to Newcastle and *word* was sent *to the medical* officers of health in each *of the* towns that had received them In Newcastle the consignment was detained for examination and as a result of this was confiscated About one fifth of the whole consignment had been distributed in the district and nearly all of these have now been recovered It is stated that the brushes were imported from Japan and that the horsehair employed in their manufacture came from China and Manchuria

THE HEART AND ACTIVE SERVICE

TREATMENT OF CONVALESCENT SOLDIERS

BY H J SEEUWEN, M D,

MEMBRE FONDATEUR DE LA SOCIÉTÉ BELGE DE RADIOLOGIE ET D'ÉLECTRICITÉ MÉDICALE ET DE LA SOCIÉTÉ BELGE DE PHYSIOTHÉRAPIE.

IN January last, at a meeting of the Royal Society of Medicine, Sir James Mackenzie opened a discussion on the "Soldier's Heart" His paper was most interesting, as was the discussion which followed its reading A few weeks afterwards Dr R N Wilson, his assistant, paid a visit to our Command Depôt and examined a great number of our men affected by heart troubles After his visit Major Tait McKenzie arranged for me to give electrical treatment to a selected group of those men

I took some 60 of the most serious cases of heart troubles All these men were at the same time given daily open air exercises by Major McKenzie's method, which included gymnastic training and route marches The physical training includes two divisions, the light and the full training The first consists of slow movements of limbs and trunk and some deep breathing exercises, in the second division we find all the movements much more vigorous, much quicker, and also running and jumping For the route marches we have the light one, which is only a walk at an easy pace for about two miles, the full route march is a sharp walk in quick time for from half an hour to an hour, usually with a band of music I made a daily application with the faradic current, the only form of medical electricity for the time being at our disposition

The history of most of those men corresponds closely with those related in the articles of Mackenzie, Wilson, and others Wounds (20 per cent were wounded), shell shock, excessive work, exhaustion, and nervous strain are common factors Debility following infection by sore throats, measles, dysentery, typhoid, malaria, were found in about 25 per cent When I carefully scrutinised all those young men's pathological history I could in more than 50 per cent trace some old standing lesions, or some weakness or at least a want of energy of the heart Some of them had suffered years before they enlisted from palpitation or breathlessness after any strong effort, such as a run or emotional disturbance Others had been suffering from attacks of rheumatism (with or without heart troubles), others had hyperthyroidism, while others had suffered habitually in winter from cold hands and feet or other vaso-motor disturbances I asked all the men if they could play football or other exhausting games before they enlisted, only five or six out of the 60 men were athletes

Another very important factor is the probability of infections by bad teeth Out of the 60 men only eight presented a healthy denture Is this not one way in which we must expect to find a very frequent cause not only of the "soldier's heart" but also of rheumatism, or what is commonly called rheumatism, of dysentery, typhoid goitre, and many other infections which find a well prepared soil in bodies which have had digestive troubles through defective teeth? In those cases the alimentary tract is first affected, but afterwards the central nervous system suffers, and all kinds of nervous symptoms may well be produced

Dr Wilson called my attention to the great number of big necks presented by the men he examined The thyroid gland is very often hypertrophied (25 per cent presented a big neck) Is it due to infection or auto intoxication? In a great number of cases I think it is During some ten months I saw with Dr A. E Barclay, in the X ray department of the Manchester Royal Infirmary, a great number of simple and exophthalmic goitres, and we found very few of those patients—nearly all women—with a healthy denture

What about spirits and tobacco, of which Dr F J Poynton spoke? I think in a few cases they may be adjuncts especially tobacco used in cigarettes where smoke is inhaled. Some of these boys were smoking and drinking more than they did before they were soldiers Nevertheless, only five out of the 60 men were smoking over an average of 10 cigarettes per day most of them smoked only half that quantity

Here are the results obtained after two months of the above mentioned treatment All the men were put as soon as possible on daily light physical training and the light route march Most of them could stand completely or partially both those exercises, whose duration was half an hour each

Example 1—Private —— had dysentery in Gallipoli He was invalided Oct 15th, 1915, was in hospital for three and a half months, and came into camp at the end of February He was short-winded, had palpitations, no valvular disease of heart, pain over heart region, bad teeth, indigestion, and a pulse rate of about 100 March 13th, 1916 Began faradic treatment and light physical training, pulse rate 92 24th Often palpitation after physical training April 4th Pulse-rate 80 13th Pulse rate 76, still on light physical training, general condition good, no palpitation for three weeks. 25th Pulse rate 76, will begin full physical training After four or six weeks when the man did not complain, when the heart trouble did not get worse, he was promoted to the full physical training and the full route march, whose duration is about the same as the light ones, except that the exercises are more severe and the march longer and faster

All those men were examined very often during the exercises and also some hours afterwards Of the patients, 10 per cent could not stand the light exercises at all at first.

Example 2—Private —— was in France for eight months and was invalided in July, 1915, with palpitation, tachycardia, and headache, pulse rate 120 Had now and then palpitation before enlisting and during training After a shell burst got worse and worse Electrical treatment without physical training was started on March 2nd, 1916, pulse 110 3rd Pulse 84 15th Pulse 78 17th Started light physical exercises 24th Pulse 88 April 4th Pulse 100, uneasiness, palpitation, could not stand the exercises Was excused all duties 26th Pulse 90, but felt better, to be recommended for discharge

50 per cent of the men could stand the light exercises but not the full The other 40 per cent improved more or less quickly by daily treatment and could soon stand the full course of gymnastics and marching Those men who could not stand the exercises complained of excessive fatigue, of palpitations of pain over the left chest, of breathlessness, and most of them presented a high pulse-rate, often 30 or 40 more beats persisting one or more days afterwards Some men who could stand the light exercises without any trouble were submitted again and again to the full exercises and each time the different symptoms came back.

Example 3—Private ——, aged 23, had an enlarged thyroid for years, bad teeth, chronic throat catarrh, tachycardia (140 pulsations) Was at Gallipoli The hot climate and very hard digging day and night made him weak After a severe bomb attack he fell unconscious for an hour and felt the first palpitation On Feb 9th, 1916, his treatment began, light exercises and faradisation After three weeks he felt much better, no palpitation, and pulse rate 90 March 2nd Had full physical exercises and on the 6th his pulse-rate was 120 9th Pulse rate still 115 Complained of uneasiness, some palpitation 10th Again on light exercises 17th Pulse-rate 88 23rd Pulse-rate 72 On April 1st we tried the patient again on full physical training 7th Pulse-rate over 100, and again uneasiness 18th Recommended for a medical board and was passed for home service, for which he was quite fitted

Example 4—Lance-corporal ——, invalided May 15th, 1915. In hospital four months with crushed head. Was in France for three months and invalided for heart trouble Before he enlisted he had a big neck, but no heart or chest troubles He felt the first palpitations after two shell shocks, and was unconscious for a few hours Stammering and tremor, good teeth, no constipation Pulse rate 68 Feb 23rd, 1916 Electrical treatment and light physical training March 15th Still light training, improvement, speech much better, no palpitations 16th Began full physical training 22nd Pulse still normal, but patient complained of dizziness, headaches, and palpitations 30th Pulse 80, uneasiness April 19th Pulse 82, pain over heart region after physical training or full route march 26th On light physical training and light route marching Felt better and pulse rate 72 To be recommended for home service

The electrical treatment consisted in a daily faradisation with a light current of long wired coil over the thyroid gland and the heart This treatment is often used on the continent for exophthalmic goitre It consists in an application with two 2 inch button electrodes for three or four minutes on the thyroid, followed by three or four minutes with one electrode over the heart region the other in the neck This kind of current has a marked sedative action, but is only local The static current may do as well and

probably better The static is a first-class tonic on the general nervous system, and local applications over the heart region may also be given through the static effluve or breeze. Deep applications of the X rays on the thyroid gland may also be very useful, and especially on those men with hypertrophied thyroid (25 per cent out of the total) Dr Florence Stoney has described this treatment, and has obtained good results X rays are certainly one of the best treatments we have now for exophthalmic goitre

Tachycardia, excessive sweating, and nervous uneasiness are the symptoms which are the most quickly and completely removed Here are the results we have obtained after an average of two months' treatment. Out of those 60 men, 14 were quite fit and returned to their unit, four others are fit and will return shortly, others are on full physical training and will be fit in a short time, over a third or 35 per cent., will be able to return to the firing line. From 10 to 15 per cent have to be discharged, the other 50 per cent. of the men have improved and may be able for home service,

Those first results are very encouraging and in the summer months I think we can do better Out-door life is easier, gardening open air games like bowling, quoits rowing and swimming may hasten the cure while X ray treatment static electricity and also hydrotherapy will greatly augment our percentage of recoveries

THE USE OF PICRIC ACID IN WAR SURGERY

BY T F BROWN D S O, M.R C S ENG, L.R C P LOND
MAJOR, AUSTRALIAN ARMY MEDICAL CORPS

EARLY in 1914 I became acquainted with the fact that picric acid was four times more potent than carbolic acid in bactericidal properties and from investigation found that a 1 per cent solution kills streptococci and staphylococci in two minutes

During the Gallipoli campaign as Officer Commanding No 1 Australian Auxiliary Hospital in Egypt, an opportunity presented itself practically to test the value of picric acid in the treatment of over 3000 wounded patients. The medical officers and nursing staff carried out the following routine treatment as far as practicable 1 To superficial wounds 1 per cent picric acid solution was applied on thin gauze The wound was thus left practically exposed to the air usually one dressing per day was sufficient 2. Suppurating sinuses were treated by syringing with 0 5 to 1 per cent of the solution twice daily and H_2O_2 solution used every two or three days to remove debris 3 Arm and leg baths with 0 5 per cent solution for 30 minutes were used for suppurating fractures and crushed tissues with an occasional bath of hypertonic saline as a change.

The results were uniformly good, healthy and vigorous granulation and quick recovery taking place Several cases of septic compound fracture and injuries to bone cleared up in a remarkably short time Deep septic wounds caused by shrapnel &c. granulated and were ready for skin grafting likewise.

It must be noted however that we found 1 per cent solution too strong for the delicate epithelium of new skin and weaker solutions 0 5 per cent and 0 2 per cent were used when the granulation reached the level of the surrounding epidermis It may be mentioned here that a 0·2 per cent solution in water and spiritus vini rect. was used in several cases of erysipelas with excellent results

The following opinions of the properties and value of picric acid solution are based on the cases treated (1) It kills bacteria without corroding effect and prevents suppuration, (2) it stimulates granulation of the tissue, (3) it has marked anodyne properties and the need of aspirin or morphia is rare, (4) by dispensing with hot fomentations it saves much time cotton wool lint G P tissue &c., (5) it is less irritative and more efficacious than iodine (6) it may be used for sterilisation of the skin in surgical cases, (7) it shortens the convalescent period.

The contra indications usually mentioned are the following 1 Coagulation of the tissue This is so slight with the solutions used that it was unnoticeable and we had no evidence of retardation in the healing of wounds from this cause 2 Poisoning effects In the 3000 cases treated not one showed any signs of poisoning Moreover, I have painted a patient suffering from scarlet fever all over with a 2 per cent. solution without any signs of absorption or poisoning, and believe that it hastened the peeling stage. 3 Discoloration of the skin This is very persistent but the muscles and subcutaneous tissues apparently do not stain

So far the opportunity has not presented itself to investigate the result of applying picric acid as a prophylactic in tetanus

The number of septic wounds arriving at the base calls for more vigorous treatment in proximity to the scene of action May I suggest that picric acid be stocked by all dressing stations clearing hospitals and field ambulances if not already in use A useful form would be compressed tablets, which, when dissolved in 1 oz. of rectified spirit and 9 oz. of water would form a 2 per cent solution. If this is applied to all wounds on gauze as a first dressing, or when practicable the wound syringed with a 1 per cent. solution and then covered with gauze saturated with a 2 per cent solution, I am quite convinced that less sepsis shorter convalescence, and fewer instances of non-effectiveness would be the result, and one which we should strive to attain, for the first duty ever before military surgeons is undoubtedly to consider (having afforded relief to the patient) the prognosis, which being interpreted means—How long will this man be away from the trenches?

In conclusion, I hope medical officers will thoroughly test the value of picric acid in this direction and publish their results, for any treatment likely to shorten the period of absence of wounded men from the firing line is an important factor in prosecuting this war and bringing it to a successful conclusion.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL

EMPYEMA DUE TO INFECTION BY B TYPHOSUS PARA A.

BY C C WEEKS M.R C S L.R C.P LOND,
TEMPORARY CAPTAIN R.A.M C

THE patient in the following case, a soldier aged 32 years was admitted to hospital on Nov 10th 1915 The history is as follows —

The patient had diarrhœa for two weeks but no treatment He was apparently well when two weeks before admission he was seized with acute pain in the back. There was some cough and clear "expectoration After the onset of pain he walked seven miles falling out several times, next day he was sent to hospital and three days afterwards sent to hospital ship from which he was admitted to base hospital with rheumatism" On admission the temperature was 103 2 F, respirations 28 and pulse 108 He was flushed and anxious with a short evidently painful cough and slight expectoration not blood stained. He had pain in the right side and shoulder Examination revealed impaired movement of the left chest Tactile vocal fremitus and vocal fremitus both impaired with marked bronchophony almost pectoriloquy at about the level of the fifth space behind. The percussion note was dull below this over an area of about the size of the palm of a hand There were a few moist rales over the left base The breath sounds were almost inaudible over the dull area On the 11th there was some improvement but on the 12th the temperature was 104°, the pulse 120 and respirations about 30 to 34 The dullness was slightly increased Impairment of breath sounds tactile vocal fremitus and vocal fremitus On the following day a small amount of turbid non-odorous, blood stained fluid was removed and pus cells were found therein On the 14 h a portion of the seventh rib was resected and about 10 oz of thick blood stained pus removed The patient rallied well from the operation but about 11 P M was extremely collapsed complained of acute pain and had great difficulty in breathing He became cyanosed and almost pulseless The drainage-tube was removed and oxygen inhalations and frequent doses of strychnine were given until 5 30 A.M, when he began to improve The subsequent history was uneventful— the tube was never replaced and the discharge gradually ceased

A bacteriological report by Captain J A Arkwright, R A M C , was as follows —"(a) B typhos para A in pus removed from empyema. (b) Ten days after operation Positive agglutination of B typh A 1/400, negative B typh B 1/100"

The chief interest lies in the bacteriological report as to the presence of B typhosus para A in the pus The question as to whether the patient had a primary lung affection remains uncertain At first I thought the collapse after the operation (about 12 hours) was due to a pneumonic crisis, but the clinical signs gave no support to that, and with the evacuation of the pus all pulmonary signs cleared up rapidly The early removal of the tube is interesting, and was possible because we were dealing with a very acute empyema

THE SURGICAL TREATMENT OF THE ERYTHEMA INDURATUM OF BAZIN

BY EMMANUEL KONDELEON, M.D ,
LATE SURGEON TO THE CIVIL HOSPITAL, ATHENS

IN a case of erythema induratum I have tried the excision of the indurated parts with a good result The following are my notes —

The patient was a lymphatic boy, aged 15 years, whose mother died from tuberculosis He himself had never any tuberculous localisation before Five months ago, two symmetrical and large indurated masses appeared at the same time under the skin of the outer surface of both arms In some parts the skin was violet-coloured but in others it appeared nearly normal These hard masses of the subcutaneous tissue extended over the outer and posterior surface of the arms and reached the elbow Only their inner surface was free The underlying muscles were not adherent to the indurated parts, which could easily be raised by the hand Five days later two subcutaneous, hard, but not quite symmetrical, nodules appeared, one on the middle of the anterior surface of the right thigh, and the other on the middle of the posterior surface of the left thigh They were not surrounded by the induration, which was so characteristic in the arms, and showed no difference in their appearance in the course of five months

The histological examination of indurated parts taken from the left arm, made by Professor Katsaras, showed tubercles in the hard subcutaneous tissue, formed mostly by epithelioid cells In some of them a peripheral zone of lymphatic cells was observed A certain number of giant cells were also to be seen, some being of the type Langhans, with their nucleus situated round the cell like a ring, while others had the nucleus in the centre The tubercles were either isolated or arranged in groups of from three to four tubercles each The lymphatic vessels were very much enlarged In some parts the enlargement was so prominent that the cysts therefrom were visible to the naked eye A close relation existed between the tubercles and the enlarged lymphatic vessels, the former having developed round the lymphatic vessels A certain number of tubercles were found in a state of beginning organisation, produced by the evolution of the epithelioid cells into a ripe connective tissue The whole area round the tubercles was very thick

From the above histological examination it was clear that the case belonged to that singular induration of the subcutaneous tissue first described by the French author Bazin under the name "erythema induratum" Further notes —

After the excision made for the histological examination I observed that the hard, infiltrated mass of the left arm disappeared round the scar This encouraged me to remove the diseased parts on a larger scale Thus on May 16th I excised all the indurated subcutaneous tissue of the left arm, while nothing was done on the right Under local anæsthesia I made an incision 6 inches long on the outer surface of the left arm, and removed all hard fat and connective tissue going from the skin to the healthy muscular layer Only a small part of the induration could not be removed through this incision A few weeks later the whole indurated area except the small unremoved part was soft The skin was still thicker than usual, but normal in colour The difference between the right arm not operated upon and the left was remarkable Nearly three months have elapsed since the operation, and the induration has not recurred

The erythema induration is a mild form of tuberculous infection whose localisation heals usually by itself The majority of these cases do not require any surgical measure, but I think that the excision of the diseased parts may be reserved for those cases in which the induration extending over a large part of the arms or lower extremities lasts for a long time and impedes their function

A CASE OF HEREDITARY SYNDACTYLY

BY W E LE GROS CLARK

(*From the Out-patient Department of St Thomas's Hospital*)

THE appended skiagram shows an interesting anomaly, which is worthy of being recorded if, as I believe, no similar case has hitherto been observed

The hand is that of a girl aged 20 who attended the casualty department of St Thomas's Hospital some time ago Both hands were affected in the same way, and on superficial examination the three radial digits appeared to be totally absent, while the two ulnar digits presented the normal segmentation and were syndactylous The patient informed me that her father and two brothers were affected by the same deformity The skiagram presents some difficulty of

interpretation The three mesial metacarpals, as shown by their shape and carpal articulation, appear to be normally developed Lying horizontally between the heads of the third and fourth metacarpals is another metacarpal bone, which is either the first or second metacarpal bone displaced from its normal position, or, as seems more probable, a reduplication of the third metacarpal It articulates proximally with the head of the latter bone, and distally with the lateral of the two proximal phalanges This phalanx, however, from its unusual width, appears to be the result of the fusion of at least two phalangeal elements, probably the third and fourth The identification of the lateral metacarpal in the skiagram is obscure, for it may represent either the first or second metacarpal element

I wish to express my gratitude to Mr Cyril Nitch surgeon in charge, for his kindness in allowing me to make a note of this case

THE CARE OF TEETH IN SCHOOLS —The School Dentists' Society is circulating the synopsis of a work recently published on school dentistry which it considers may suggest topics for discussion by members of the society and others interested in school dentistry Among the general contents are chapters on school dentistry and infectious and nervous diseases, and on the anomalies and deformities of the teeth and jaws in children, caused by general debility Special articles are included on the position of school dentists, and on the inspection and examination methods of teeth in the schools, while examples are given from German sources of the general management of dental clinics in Berlin

Reviews and Notices of Books.

Cerebrospinal Fever

By MICHAEL FOSTER, M A. M D Cantab, Captain R.A M.C T F, and J F GASKELL, M A M D Cantab, Captain R.A.M C, T F Cambridge University Press Pp 222.

HITHERTO but one monograph on cerebro-spinal fever has appeared in England, and we welcome this contribution to the literature of the subject from two workers of known care and experience The book aims at bringing together and correlating the clinical and pathological facts accumulated by the authors during the epidemic of 1915 The material upon which the book is based has been studied by the authors personally, both in its clinical and in its pathological aspects hence the note of practical and first-hand knowledge which characterises its pages The chapters deal successively with history, symptoms, diagnosis the main clinical types, treatment, pathology, and epidemiology A chapter deals with the changes in the cerebro-spinal fluid and the cultivation of the meningococcus from it, another deals exhaustively with the bacteriology of the causative organism and other Gram negative cocci There are 11 coloured plates of quite exceptional merit, embracing characteristic skin eruptions the brain and spinal cord showing exudates of various sorts a section of the infected meninges as seen under the microscope, and a film of the cerebro-spinal fluid from a fulminating case The inclusion of these plates quite justifies the large size of the book necessitated by them

Several points of interest strike us in reading the text. The authors lay stress upon the frequency with which the sphincters are affected during the first few days of the disease —an important diagnostic feature when other febrile conditions are considered The relative infrequency of both photophobia and squint, as compared with their frequency in tuberculous meningitis is referred to A case is cited illustrating the point that patients regarded as suffering from relapses may have been all along slightly hydrocephalic In discussing the difficult matter of prognosis the authors emphasise the fact that in no disease seen in this country can such dramatic changes be witnessed as in the diverse phases of cerebro-spinal fever An apparently desperate case may make a rapid recovery while one of milder onset runs a uniformly downward course terminating in death The authors note the relative rarity of mental enfeeblement as a sequela of the disease They give a useful caution with regard to increased pressure in the cerebro-spinal fluid at the moment of lumbar puncture This is too often commented on as being of diagnostic importance As the authors truly say, such increase of pressure is by no means peculiar to meningitis, the pressure is increased also in tumour and of greater importance to remember in certain febrile diseases such as pneumonia and influenza. The problem of "carriers" is fully dealt with In the experience of the authors carriers fall into two groups transient and prolonged, the latter group is considered to be in all probability most responsible for the spread of the disease

In the chapter on treatment the authors are frankly pessimistic about the value of anti meningococcic serum although they admit that their series of cases is a small one upon which to base an opinion In nine cases treated with serum their mortality was 55 per cent in 30 cases treated without serum their mortality was only 30 per cent They attribute the apparent good effects of serum treatment to the drainage by lumbar puncture incident to the use of the serum and they consider that the results of simple drainage by puncture are better than those obtained by drainage plus the injection of serum We feel convinced that there is some fallacy here and can only suppose that the sera used in their cases happened—the same ill fortune befell other workers also about this time—to be of less potency than serum available earlier and later The authors mention an interesting observation they were able to make in the use of auto-serum therapy A man who had recovered from all acute symptoms suffered from irregular fever accompanied by headaches, 5 c.c of his own serum were injected intrathecally and complete relief of all his symptoms ensued We note that the thesis advanced by Leathe Thomas, Fleming and Maclagan who laid great stress upon the existence of a catarrhal stage" in the disease, is not confirmed by the authors observations Such a stage though carefully looked for, has not been found in any of their cases On the contrary, as we believe is the experience of most workers, the authors were struck by the fact that, in every carrier identified by them, not the slightest sign of catarrh has been present

The essentially technical portions of the book deal with the bacteriology concerning which as with the clinical sections the authors report almost entirely their own observations This method renders their work extremely valuable as a contribution to this most important subject but detracts a little from the value of the book as one for the general service of the practitioner for whom, perhaps, it is scarcely intended. Of what we believe to be errors in fact there are strikingly few No doubt it is due to (for them) an unusual dependence upon theory that allows the authors to say "the presence of a leucocytosis is of some assistance in the diagnosis of doubtful cases, as in tuberculous meningitis no increase of leucocytes is present in the blood" There is a very useful, and very carefully prepared, bibliography at the end of the book

A Laboratory Course in Serum Study

By HANS ZINSSER, M D, J S HOPKINS, M D, and REUBEN OTTENBERG M D New York The Macmillan Company 1916 Pp 184 Price 5s 6d net

THIS book is a schedule of the course of practical instruction given by the authors at Columbia University and is based upon their experience which extends over some years The laboratory course is supplementary to a lecture course on infection and resistance, and it is taken for granted that the student has already considerable knowledge of bacteriology and bacteriological technique, and that the instructions given will be supplemented by the assistance of a demonstrator The possibility of such a course as this will raise a feeling of envy in the breasts of British teachers, for the legislation of this country renders any imitation quite impracticable Even in America the course seems somewhat ideal and does not form an integral part of the regular medical curriculum but is an optional course offered to second and third year medical students

The work is divided into a series of lessons each of which deals with some important property of the serum in its relation to the problems of immunity It is arranged so that, so far as possible the work of one lesson leads naturally to, and often furnishes the material for, the subsequent one. The course includes the preparation and examination of the properties of hæmolytic and bacteriolytic sera, agglutination and agglutinins precipitins and their production and use as tests, complement fixation and its practical use in diagnosis antitoxin formation and titration and the phenomena of anaphylaxis—the synopsis which is not complete shows that the ground covered is extensive. The book is eminently practical the instructions clear and concise and the whole bears the stamp of having been thoroughly tested by actual working, this is especially seen in the instructions to the demonstrator as to the materials to be prepared and the dates on which they must be got ready The apparent freedom of the teachers from any anxiety as to the sordid details of expense if we may judge by the list of apparatus required by each student will raise further feelings of envy in English bacteriologists As stated above this is a course of instruction which cannot be given in England in its entirety, but much might be adapted from it and by extending the work of the demonstrator to cover the vivisection experiments a very useful course of instruction could be built up on the basis of this schedule. It is in any case a book which will prove of the greatest value to the teacher and demonstrator It is well printed and every other page is left blank so that the worker can add his notes

Discovery The Spirit and Service of Science

By R A GREGORY London Macmillan and Co Limited Pp 340 Price 5s net

Mr Gregory in this interesting book shows clearly briefly and eloquently how much is owed by the world to scientific discoverers justifying his high estimate of these discoveries by arguments that are mostly simple and incontrovertible.

One of his main lessons is the necessity of putting aside the utilitarian spirit, a view which is apparently in direct contradiction of a strenuous movement that is now taking place among scientific workers, but the contradiction is in appearance only Science is not to be measured by practical service alone, that is the high teaching we must remember, but this does not mean that science is only noble, and only elevating to her followers, when the results of the quest cannot be applied to the work of the world

Mr Gregory's description of the scientific mind is well done, and his narration of the episodes that have attended the pursuit of knowledge throughout the ages is a pleasant feature of the book, which, indeed, is largely a collection of the more prominently romantic stories associated with scientific progress The recognition of the fact that scientific investigations carried on with the motive of acquiring new knowledge has led to results of great practical value show Mr Gregory to be no visionary, it is necessary to point this out because the chapters entitled "Across the Border" and "Towards Infinity" show also that he recognises no bounds to the field beyond which knowledge may be extended. There is a fairly comprehensive section on science interesting to medical men, entitled "Conquest of Disease," and it is here that some of the best examples will be found of the altruism displayed by so many scientific leaders Pasteur, for example, could certainly have become a multi millionaire if he had treated his work from a commercial point of view

We hope this book will reach a large public Applied science is playing the predominant part in the war and when the war is over it is to applied science that the nations will turn in their enormous works of reconstruction, rehabilitation and repair This country needs some straight teaching, like that conveyed by Mr Gregory's book, upon the service that science does and upon the spirit in which that service is rendered. More general appreciation of the essential aims of science will dispel the confusion that seems to exist between practical and academic knowledge

LIBRARY TABLE

The Medical Annual 1916 Bristol John Wright and Sons, Limited Pp 919 Price 10*s* net —In the thirty fourth issue of this useful Annual the usual features have been retained, while special attention has been given to the needs of naval and military surgeons In Part III, Deputy Surgeon General A. G Wildey contributes a general review of the points of most practical importance concerning the medical officer's relation to the fighting man, and this is followed by a valuable chapter on wound infections from the pen of Captain A. C Inman, illustrated by excellent coloured plates The admirable quality of the illustrations is indeed a feature of the whole volume The practitioner, both civilian and military, will find the Annual an almost indispensable vade mecum and a source of enlightenment on many subjects too recent to have found their place in text-books

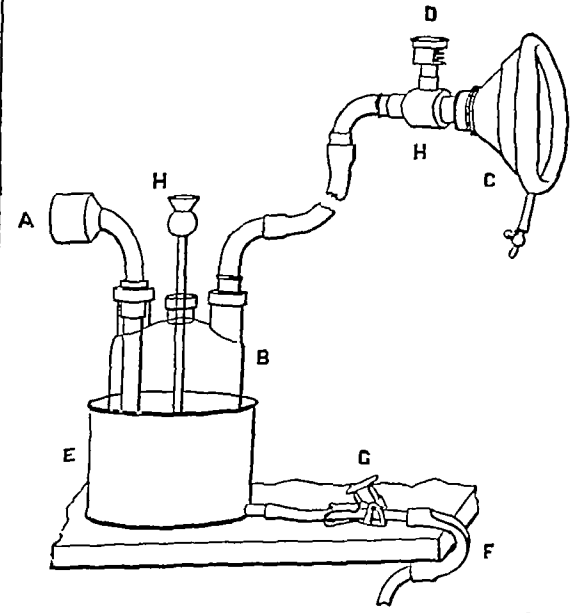
The Story of a Red Cross Unit in Serbia By JAMES BERRY, B S Lond, F R C S Eng, F MAY DICKINSON BERRY, M D, B S Lond, W LYON BLEASE, LL M and other Members of the Unit With 30 illustrations London J and A Churchill. 1916 Pp 293 Price 6*s* net —In this volume Mr and Mrs Berry have collected the experiences of the Royal Free Hospital Unit at the request of many friends who wished to have some permanent record of the work done by the mission. As our readers will remember, little surgical work fell to the hands of the unit but they were able to give an object-lesson in hygienic methods which can hardly fail to bear fruit Three members of the mission were, or became, fluent Serbian scholars, and were rewarded by gaining more insight into the Serb character than many who have made a superficial study of the country The Serb is described as "a very simple, egoistic, likeable people indeed dirty enough, living on mud floors disliking fresh air, and consequently suffering much from tuberculosis and diphtheria careless about water supply, and therefore horribly tormented with worms, but always lively and affectionate delighting in bright colours and wild music and making a most attractive combination of its characteristic virtues and failings" The book gives a pleasing picture of an experiment in international amity

The Book of Sorrow By ANDREW MACPHAIL. Oxford University Press 1916 Pp 500 Price 6*s* net —This book of verse contains, Dr Macphail assures us, all that has been said—all, indeed, that can be said—upon the theme of sorrow Designed at the outset for private luxury, the compiler has completed his task in Flanders, where the scenes provide ample warrant for such a collection For any imperfection in the book Dr Macphail pleads as excuse the place of his present abode and the nature of his employment In peace time professor of the history of medicine in McGill University and editor of the *Canadian Medical Journal*, he is now, we believe, a lieutenant-colonel in the Canadian Engineers Our readers have already some experience of the author s sympathetic style and breezy frankness as an essayist and a perusal of this anthology will not bring disappointment The poems are arranged under headings such as Serenity, Rest Resignation, and Consolation An index of authors and of first lines affords ease of reference The publishers have adopted a similar style of type and binding to the familiar Oxford Books of Verse

New Inventions

A "DRAW OVER" ETHER INHALER

THE apparatus here illustrated is a modified form of Vernon Harcourt's inhaler A contains a large removable intake valve and is fitted with a rubber ring to keep it at any level, B is a three necked bottle for ether, C a Clover's mask, H, a three way adapter connecting it with the efferent tube of V H bore, and carrying D, an expiry valve E is an enamelled hot-water basin F its waste pipe, G, a clip, and K (mislettered H), a thistle funnel, replaceable by a cork, for adding ether or giving O_2 The apparatus is not



used for inducing anæsthesia, before changing say from the Clover method the patient should be *well* under," or the end of A some inches above the ether, lest coughing or breath holding ensue When the patient breathes freely A is brought down close to the ether and *hot* water may soon be needed, to increase the vapour strength A V H mask may be used instead of C, D, and H. The ether vapour may be moistened and warmed by placing a steaming hot water jug, or thermos, close under A All adjustments can be made with one hand, generally both hands are free for holding the jaw This inhaler is efficient for abdominal cases of all kinds, and specially convenient for operations on the breast, neck, and head as plenty of air and ether can be given without disturbing the sterile towels

The apparatus is made by Messrs. Barth

A BERESFORD KINGSFORD, M D Durh,
Assistant Anæsthetist University College Hospital
Upper George-street W

A UNIQUE "EVERY CONTINGENCY" INSURANCE

The ideal insurance for professional men is one which covers (1) sickness of all kinds, (2) accidents of all kinds, (3) death, or survival to age 65 The Combined Policy of the Medical, Sickness and Accident Society has been specially drawn up to provide for all of these contingencies —the rate charged is the lowest obtainable, the Society deals *only* with medical and dental practitioners, is mutual, and was established in 1884

EXAMPLE:

At age 30 an annual premium of £13 8s 6d will insure the following benefits—During incapacity from illness or accident £3 3s per week for first 26 weeks and £1 11s 6d per week during remainder of illness to age 65 At age 65 or previous death £300

Sickness and accident claims are paid every week by cheque, and death claims on production of satisfactory evidence Survival claims are paid on the 65th birthday

Practitioners should write the Secretary for full prospectus

MEDICAL SICKNESS & ACCIDENT SOCY.,
300, High Holborn, W C

A Guarantee!

Cadbury's Cocoa

is absolutely pure and prepared only from the finest selected cocoa

(*Cadbury Bournville*)

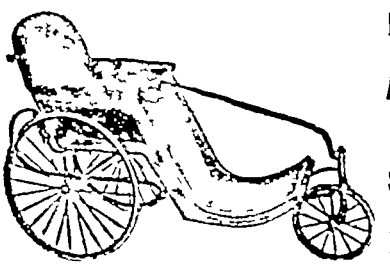
By Special Appointment to H.M THE KING

CARTERS'

Established over 60 — years —

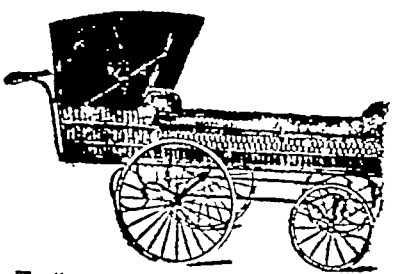
FURNITURE FOR INVALIDS AND HOSPITAL SUPPLIES OF EVERY DESCRIPTION.

Telegrams 'BATHCHAIR, WESDO LONDON" Telephone 1040 MAYFAIR.



The 'St. Leonards" New Model.

READING STANDS,
BED TABLES,
ADJUSTABLE RECLINING CHAIRS,
HAND TRICYCLES,
SELF-PROPELLING CHAIRS,
HOSPITAL BEDS,
COMMODE CHAIRS, &c



The "Southsea" Wicker Spinal Carriage

Purchase direct from the Manufacturers

J. & A. CARTER, 2, 4 & 6, New Cavendish Street, London, W

NEOCAINE-SURRENINE

A PERFECT COCAINE SUBSTITUTE OF LOW TOXICITY.

Effective and Safe for LOCAL ANÆSTHESIA, &c.

'Since the commencement of hostilities we employ Neocaine-Surrenine Corbiere which has given us every satisfaction

Pouchet and Sourdat
Regional Anæsthesia.

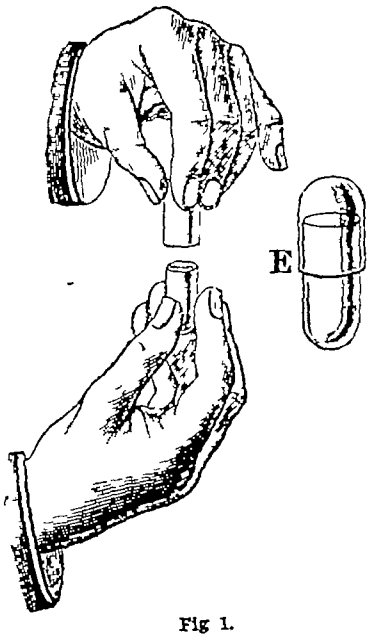


Fig 1.

Neocaine is a synthetic product of French manufacture It is in the form of a white powder, belongs to the Benzoyl Dimethyl Ethyl series, and is easily soluble in cold water **Neocaine** possesses all the therapeutical qualities of Cocaine (excepting as an exhilarant) but only **one-sixth—one-seventh of its toxicity**

The Anæsthetic power of Neocaine is equal to that of cocaine, also its duration and rapidity of action

Neocaine does not, like Cocaine, exert a vasoconstrictor action, **but is a cardiac tonic.** It produces no local irritation if the injection is made aseptically

Composition of Neocaine-Surrenine:

Pure **Neocaine**	1 gramme
Borated Adrenalin Chloride (Takamine)	2 milligrammes

APPLICATIONS

1.—LOCAL ANÆSTHESIA BY INFILTRATION
2.—REGIONAL ANÆSTHESIA.
3.—RACHIANÆSTHESIA.
4.—ANÆSTHESIA BY EXTERNAL APPLICATION

NEOCAINE-SURRENINE may be obtained in:

* 5 centigramme doses, each in sterilized double capsule, easily pulled apart (Fig 1 E)
* Tube containing 20 5 cg doses of the powder in capsules (Fig 2)

Tube containing 5 grammes of powder
" " " ½ oz. " "
" " " 1 " " "

* Not suitable for export to hot humid climates for this purpose powder in tubes or solution in ampoules is recommended

"Neocaine-Surrenine gives marvellous results in the operation of extraction dental anæsthetization in pulpectomy and cases of periodontitis"

Odontology
Professor Choquet.

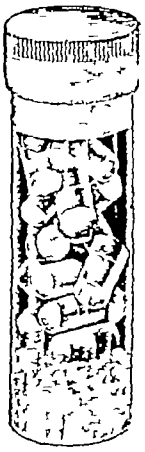


Fig 2.

READY PREPARED STERILIZED SOLUTION IN AMPOULES.

Ampoules of 1 c c, each containing 5 cg of Neocaine-Surrenine (solution 1 in 20)
Ampoules of 1 c c, each containing 2½ cg of Neocaine-Surrenine (solution 1 in 50)
Ampoules of 2 c c, each containing 5 cg of Neocaine-Surrenine (solution 1 in 40)
Flask of 10 c cm, with a patent stopper, containing sterile solution of Neocaine Surrenine (1 c c = 5 cg solution in 20) (Fig 3)

FOR EXTEMPORANEOUS SOLUTIONS
Ampoules matrasses of isotonic sterile serum (1, 5, 10 20, 50, and 100 c.c.) for adding the Neocaine Surrenine powder (Fig 4)

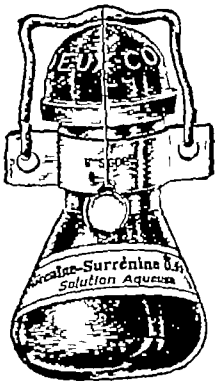


Fig 3

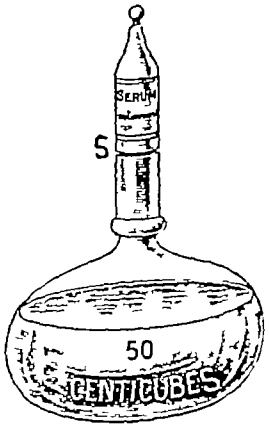


Fig 4.

Full Literature and Clinical Reports on application to—

THE ANGLO-FRENCH DRUG CO, Ltd. (late M BRESILLON & Co),
Gamage Building, Holborn, LONDON, E C
Phone HOLBORN 1311

Telegrams 'AMPSALVAS, LONDON"

THE LANCET.

LONDON SATURDAY SEPTEMBER 2 1916

Economy and Public Health

THE air is full of exhortations to economy, and it is not the abandonment of luxuries that is enjoined upon us, but the practice of economy in regard to the necessaries of life Luxuries have, we believe, been surrendered by the greater part of our population either from motives of patriotism or poverty or out of a desire to conform to general conduct, but many who have been proud of giving up the superfluities of life have not dreamt of being sparing in their use of the necessaries Now we are urged to reduce our consumption of electric light and gas, and our water requirements Such suggestions obviously raise serious considerations of public health, and already our readers have been consulted as to the public duty in the matter The fact that the exhortations appear sometimes to be inconsistent with the general position of affairs has laid them open to criticism For example, we are asked to cut down our consumption of gas because coal should be saved But the importance of getting a large quantity of gas residuals from which explosives are made is emphasised, while the larger the amount of gas made, the larger is the amount of coal distilled, and the larger the yield of residuals It follows that to satisfy the demand for explosives implies a bigger output of gas therefore our supply of gas should be abundant and cheap, which should be a reason for using it more extensively, particularly for cooking purposes, reserving coal for the making of munitions But the gas companies are charging the public more for gas Why gas should be dearer when gas residuals are in enormously increased demand and when something must be done with the gas—which, from a war point of view, has become the bye product—passes the common understanding, while economy in the use of gas is a real drawback to domestic hygiene, either in the institution or the home Exactly the same may be said of electric heating and illumination—their use makes directly for the improvement of public health Yet the case is different for the electricity companies for they burn coal and do not distil it, and therefore get no residuals The current costs more to produce owing to the great demand for coal In other words steam making is a very expensive matter and steam is essential for driving the dynamo There appears therefore, to be a good reason for reducing our electric consumption, but on the contrary an equally good reason for making all the use we can of gas both for lighting and heating purposes

The suggestion to economise in our use of water has primarily the same reason behind it as the suggestion to reduce the employment of the electric current Practically speaking, water is brought to our doors by coal, hundreds of thousands of tons of coal being used annually to keep the pumping machinery effective Clearly, if we elected to use less water the strain on the pumping engines would be relieved and the public coal bill accordingly reduced There can be no doubt that we could, without much inconvenience, use less water than we do But it must be remembered that the bulk of the public supply goes to keep efficient the sanitary machinery in the bath, the sink, and the water closet The proportion that is used for simple drinking purposes compared with these demands, is quite small and may be left out of calculation The suggestion to be sparing of water for sanitary service cannot be lightly entertained but a material economy might be reasonably attempted in the matter of baths, for in recent years a very big demand on the water companies in regard to baths has been accompanied by gross waste The amount of water used in domestic baths is usually out of all proportion to what is necessary We should be sorry to see any interference with the standards of personal cleanliness, and undoubtedly the regular use of the bath has done much to maintain the health of the public, but the benefits of cleanliness need not be lost by economy of water in the bath A complete sponging of the body can be secured in a comparatively little water The luxury of the bath amounts to a complete immersion, which involves a considerable quantity of water that is not actually necessary for a mere cleansing process

The recent exhortations to economy have in the course of the last day or two become more timeous than was intended, for such advice may be particularly needed when the tremendous pressure of the great war can be seen by everyone to be lifting The entrance of Roumania into the conflict has this enormous significance—a significance which all can see—inevitably it must shorten the duration of the struggle More soldiers are added to the forces of the Allies, the blockade of the Central Empires becomes stricter, and the sense of victory in itself forces the pace This is just the condition of things which is likely to lead to failure in economy after a strain of long duration When the obviously great things are going well it is difficult to pay due attention to what seem to be the small things, and when an end appears to be approaching to a rigid and compulsory parsimony, it is hard not to anticipate that end But it is absolutely necessary that the strictest economy should prevail in our domestic expenditure and our domestic consumption until the end of the war, remembering, however, that no proceeding which leads to a failure in public health can ever be anything but disastrously expensive All householders should take steps to limit their consumption of water and electric light but no municipality should allow the sanitary service to go short in any particular

Instruction in Medical Ethics

AT their last session the General Medical Council passed a resolution with regard to professional education, supplementing certain resolutions adopted in 1912 The new resolution, the importance of which is increased by the situation due to the war, was in these terms —

Instruction should be given in the courses of Forensic Medicine and Public Health, or otherwise, on the duties which devolve upon practitioners in their relationship to the State, and on the generally recognised rules of medical ethics Attention should be called to all notices on these subjects issued by the General Medical Council

The duties of the practitioner in his relationship to the State have increased enormously during the past half century, and he has now constantly to consider the application of laws imposed in the interest of the public health or of the public morality, where once he would have been concerned only with the primary duty of a medical man—that towards the patient To the problems which normally affect him in time of peace others have been added by war Thousands of medical men have been withdrawn from their practices to meet the demands of our military and naval forces Thousands of others are treating patients who in normal circumstances would not have come under their care, and delicate situations may arise out of the performance of their work, whether in replacing a colleague or assisting the State Careful observation of the principles of medical ethics is required now, and later will be especially needed in order that readjustment may take place without friction or complication

Many ethical difficulties are a product of the times There has been a dislocation of medical training and a change of all the conditions under which in peace the student develops into a practitioner imbued with the traditions of an honourable profession and, almost unconsciously, familiar with the rules which have guided that profession in the past The age has its iconoclastic tendencies, and there is observable in other spheres besides that of medicine an inclination to regard as effete any restrictions and regulations based mainly on the experience of seniors Accordingly the introduction into medical education of a course of instruction in medical ethics might be of great service as soon as medical education begins again to follow a normal course, in order that those who enter the profession may have before them from the first definite principles for their guidance Patients, the State, and professional brethren have each their own claims to be recognised, and it is when their respective claims appear to be in conflict that the principles which must underlie all ethical rules are to be called in aid An elaborate code, with a special remedy suited to meet any difficulty which may arise, could hardly be drawn up, nor would it be of frequent use if drawn up The variety of cases which may arise is considerable, and a man may find himself confronted at any time by some incident of professional life for which no code could supply a fixed regulation The application to the ordinary chances of professional life of the principle that a man should do as he would be done by will meet the majority of cases, good sense, good temper, and willingness to take advice will then remove most difficulties The golden rule of altruism has, no doubt, its most obvious application in the regulation of questions arising in the relations of one practitioner to another But it is of wider application The medical student must remember that he is joining a profession which may provide him with a means of living, according to his abilities and his opportunities, but which, however deserving his conduct, may bring him little pecuniary reward He is entitled to seek that reward by every honourable means, while endeavouring to compass the good of others, and to procure for them those conditions of health which each of us, whatever our station in life, must always crave for himself

It is a noticeable circumstance that in its relations with the lay public the medical profession should find medical ethics, or "medical etiquette," to use the more popular phrase, but little understood. This is most often exemplified in courts of law, not only when witnesses decline to answer questions put to them, but when more or less ordinary incidents of medical conduct form part of the subject of inquiry Hostile criticism of "medical etiquette" is frequently heard upon such an occasion, as if obligations of professional duty were an unusual phenomenon peculiar to medicine And yet the legal profession claims for itself privileges, and binds itself by ethical rules, quite as absolute as any for which the medical profession has ever sought recognition The solicitor or barrister in relation to his client claims privilege so that he may not be compelled to divulge that client's secrets learnt in the exercise of his professional duties The solicitor and the barrister in their relations towards members of their respective branches observe and enforce ethical rules, and again as between the two branches of the legal profession the rules of professional ethics are followed and insisted upon It ought not therefore to be difficult to win more general appreciation for the principles of medical ethics in courts of law, and perhaps this end may be attained when the study of such principles forms a recognised and necessary part of the practitioner's education The bodies entrusted by the State with the training of the student have a right to claim support from the State for that which they may deem to be a necessary part of the professional curriculum, and this is a point which should not be forgotten

---

BY will the late Mr John Temple Leon, of Southsea has bequeathed £500 to the Royal Portsmouth Hospital and £300 to the Eye and Ear Infirmary, Portsmouth

FRENCH HONOUR FOR BIRMINGHAM DOCTOR —The French Government has bestowed on Captain John Dale, R A.M C (T) the Médaille d'Honneur des Epidémies for his work in checking an epidemic of typhoid fever among the civil population in an area where, by reason of the mobilisation, the usual civil practitioners were not available Captain Dale went to France at the outbreak of war In civil life he is assistant medical officer of health at Birmingham

Annotations

"Ne quid nimis."

THE PREVENTION AND TREATMENT OF VENEREAL DISEASES

THE regulations of the Local Government Board dealing with the part to be played by the State in the prevention and treatment of venereal diseases were issued on July 12th, together with a Circular to the various municipal and institutional authorities concerned.[1] A further Circular has now been issued by the Local Government Board to these authorities, stating that the scheme in the first Circular has since been considered at the Annual Meeting of the Representative Body of the British Medical Association,[2] and that a deputation from that body to the President of the Local Government Board has cordially approved of the scheme, and that the medical profession generally was most anxious in every way to coöperate with the department in making it successful. The deputation suggested that it would be a great advantage if committees of local authorities to whom the preparation of a scheme was delegated, were to invite the local medical profession to nominate two representatives to attend all committee and subcommittee meetings at which the proposed scheme was to be discussed, who could assist the committee with their special knowledge of the needs of the particular area. One of these representatives should, they thought, ordinarily represent the medical staffs of hospitals and the other the general practitioners in the administrative area. Mr Long has commended the suggestion to the local authorities as being likely to secure the cordial coöperation of the medical profession.

The new Circular deals also with questions which have been raised as to safeguards in the distribution of salvarsan or its approved substitutes, and the intention of the Board is stated to be that these drugs should be supplied free, for the purpose of intravenous administration to patients, to all medical practitioners who can produce satisfactory evidence of training or experience in the administration of these drugs. The Local Government Board does not desire to lay down any hard and fast lines in regard to this matter, but holds it advisable that as a general rule the drugs should be distributed by the medical officer of health, or some person acting as his agent, and that this official should satisfy himself before issuing a supply that the applicant is a registered practitioner who (*a*) holds a certificate of having satisfactorily fulfilled the duties of clinical assistant in a hospital department recognised by the Local Government Board in connexion with a local authority's scheme for the diagnosis and treatment of venereal diseases in their communicable stages (*b*) holds a certificate of satisfactory attendance at a course of instruction in the diagnosis and treatment of venereal diseases (including intravenous medication) in such a hospital department or in a recognised medical school or post graduate college (*c*) is or has been within the last five years a member of the permanent staff of a hospital managed by a committee and containing not less than 50 beds, or (*d*) produces satisfactory evidence other than that indicated in the foregoing paragraphs that he has had adequate experience in the administration of these drugs by intravenous injection.

[1] THE LANCET, July 22nd, p. 1[illegible]
[2] THE LANCET, August 1[illegible], p. 2[illegible]

VITAL STATISTICS OF THE ARMY A CENTURY AGO

IN a paper read before the Section of the History of Medicine of the Royal Society of Medicine, Dr Arnold Chaplin has made it clear that the data for the vital statistics of the British Army have been recorded in much detail for more than 160 years. The "War Office Series" of the archives in the Public Record Office was, we believe, first collected and rendered accessible by Sir James MacGrigor. "It is no exaggeration," says Dr Chaplin, "to assert that if the name and regiment of any humble soldier serving his King from 1750 to the present time be given, his whole record while in the Army can be traced by reference to this series." The casualty returns contain the wills of those who died while serving. They are often written on faded scraps of paper that have travelled from far off corners of the Empire. Most of them, according to Dr Chaplin, begin with the stereotyped formula, "In the name of God, Amen, I, John Jones, being about to meet my Maker," and then follow simple directions as to the disposal of the small effects, such as a belt or a pocket knife. Often attached to the will is a scrawled and soiled document, in which the wife or other heir of the deceased acknowledges the receipt of, it may be, 3*s* 4*d*., the value of the effects, and thus the accounts of a humble but worthy maker of Empire are finally settled. The researches of Dr Chaplin are in some sort deductions from these War Office documents, which state the cause of death but in themselves afford no reasoned conclusions as to the incidence of disease among the soldiers. Our armies in the past were far from healthy for several reasons: the authorities were ignorant as to the cause of disease, the conditions necessary for health were not studied; food and clothing were not suited to climate, for encumbered by heavy accoutrements and encased in tight clothing, the soldiers of the past often marched in a burning tropical sun and slaked their thirst after exhausting fatigues with copious draughts of strong malt liquor. Finally, military hospitals, with their endemic gangrene, were often the worst enemies of the sick. Disease, in the form of epidemics, frequently ravaged whole regiments. The regiment of Guards which Edward Jenner vaccinated at the beginning of the nineteenth century was found to be suffering from an epidemic of itch, and small pox and various chest complaints, from influenza to phthisis, broke out at any time and decimated our forces. Malaria, plague, yellow fever, cholera, and sunstroke were rampant in the tropics, the last being now attributed to the heavy busbies worn. Between the years 1817 and 1821, years of peace, be it said, 17 out of every thousand soldiers, quartered in Great Britain, died each year. This compares unfavourably with the civil mortality of 11 per 1000 (in the years 1823–27), of persons between the ages of 20 and 40. In the tropics the military death rate was infinitely higher. In India, for instance, between the years 1817–21 it was 87 per 1000, in Sierra Leone ("the White Man's Grave") as high as 362 per 1000, in Jamaica 185 per 1000, and in Ceylon 111 per 1000. These are the highest figures, but in hardly any case was the rate in our colonies and dependencies as low as in London in the period mentioned. Canada, for instance, stands at 19, Gibraltar at 18, Malta at 25, the Cape alone at 12. The death rate in the present war has, we are told, been at the rate of 60 per 1000. This compares curiously with the average death rate from disease

in the years 1817–21, which is a fraction over 74 for the stations in metropolitan areas, Scotland, Gibraltar, Malta, Ionian Islands, India, Jamaica, Bermuda, the Cape, West Africa, Canada, and St Helena Were we now at peace, the rate of death from disease in the Army of Great Britain would be below rather than above 2 6 per 1000, which was the rate in 1907–11 These figures are the measure of our scientific progress in medicine

EXPERIMENTS ON LIVING ANIMALS

AN abbreviated report has been issued by the Home Office showing the number of experiments under licences on living animals during the year 1915 Professor G D Thane, the chief inspector, states that 21 new places were registered for the performance of experiments and two places were removed from the register during the year Of the 21 new registered places 13 are laboratories connected with naval or military hospitals and sanitary institutions The total number of licensees is 664, of whom 322 performed no experiments The experiments reported are, as usual, grouped under two heads The total number of experiments other than those of the nature of simple inoculations, hypodermic injections, or similar proceedings is 2771 Of these there were performed under licence alone, 1505, under Certificate C, 275, under Certificate B, 782, and under Certificate B + EE, 209 The other group is devoted entirely to inoculations, hypodermic injections, and some few other proceedings performed without anæsthetics It includes 67,802 experiments, whereof there were performed under Certificate A., 67,521, under Certificate A + E, 270, and under Certificate A + F, 11 During the year 1915 11,657 experiments were performed by 14 licensees in the course of cancer investigations Seventy licensees report over 20,000 experiments which were performed for Government departments, county councils, municipal corporations, or other public health authorities Twelve licensees report nearly 25,000 experiments for the preparation and testing of antitoxic sera and vaccines and for the testing and standardising of drugs

STATE CONTROL OF THE LIQUOR TRADE

UNDER the above title the Temperance Legislation League has issued in pamphlet form a reprint of an article by Mr A Sherwell, M.P, which was originally published in the *Spectator*, and at the time of its appearance attracted very favourable notice as a moderate and reasoned statement of the case for the nationalisation of the liquor trade As Mr Sherwell remarks, the war has totally changed the situation with regard to this problem, and no one, not even the most convinced individualist, would now be prepared to suggest that, in the matter of the drink question, a return to the *status quo ante bellum* is either desirable or practicable The success which has attended the policy of the Central Control Board has clearly shown in how large a measure the social evils of alcoholism can be abated by a reasonable system of regulation, and public opinion will certainly demand that the improvement in the national habits brought about under this influence shall not be allowed to lapse at the end of the war To maintain and develop that improvement, however, in face of the numerous and powerful forces making for reaction it is essential that the State should not be hampered in handling the question by the opposition of private interests The buying out of the liquor trade would be an immense financial operation, but that it is perfectly practicable, under conditions securing fair treatment of the private interests involved, is evident from the fact that the representative committee of experts appointed by the Treasury to consider the matter in the spring of 1915 had no difficulty in agreeing on a detailed scheme of purchase Mr Sherwell brings forward cogent arguments in support of the immediate adoption of this scheme or of some scheme on similar lines, and he further makes out a strong case for the direct control and management of the industry as a State monopoly It is interesting to note, from some expressions of opinion quoted at the end of the pamphlet, that even strong opponents of the principle of State and municipal trading recognise that the usual objections to that policy do not apply in the case of the liquor traffic Thus, the lack of energy in pushing business, which is frequently alleged as a special drawback in State trading, would in this instance be rather of the nature of an advantage, while the other stock objection to such enterprise—the increase in the number of Government servants, with the attendant risk of their organisation for personal aims—can hardly have much weight, seeing that these servants would replace a larger number of persons who have a direct pecuniary interest in the sale of alcohol It is satisfactory to observe that both Mr Sherwell and the public men whose comments on his views appear in the appendix to the pamphlet, are emphatic in their condemnation of the system of municipal control The political conditions of the moment appear to offer a unique opportunity for dealing with the liquor problem on national lines and without the distorting influences of party prejudice Mr Sherwell's brochure should do much to promote clear thinking on the question, and we trust that it will be widely circulated.

THE NEW POST OFFICE REGULATIONS FOR PATHOLOGICAL SPECIMENS

THE regulations concerning articles sent for medical examination or analysis have recently undergone some modification, and the amended regulations as now in force are given in Leaflet No 87 issued by the Secretary of the Post Office They will be found to give reasonable facilities for the sending of pathological material by post, which cannot be said to have been the case before Material may now be sent by the patient to a recognised medical laboratory or institute, and the packet, although it must be conspicuously marked "fragile with care" and bear the words "pathological specimen," need no longer have the name and address of the sender written on the outside The packet must be securely closed, but the regulations no longer require it to be hermetically sealed The submission of receptacles, if these are supplied by a laboratory or institute, for the approval of the Secretary of the Post Office, is now an instruction instead of a recommendation The remaining instructions are unchanged, and it is still inadmissible to send pathological specimens by parcel post We have inferred that the new regulations are much more reasonable than the old In practice, however, the difference may not be very apparent, as the amendment only gives official recognition to practices which have long been going on The old regulations had proved unworkable, and their non observance had been tolerated by the authorities

THE SHIAH PILGRIMAGE AND THE SANITARY DEFENCES OF MESOPOTAMIA AND THE TURCO-PERSIAN FRONTIER

By F. G. CLEMOW, M.D., EDIN., C.M.G.

BRITISH DELEGATE TO THE INTERNATIONAL BOARD OF HEALTH AND PHYSICIAN TO H.M. EMBASSY, CONSTANTINOPLE.

IV.—THE PILGRIMAGE AND TRANSPORT OF BODIES TO THE SHIAH HOLY PLACES

IN the preceding articles the sanitary defences, firstly at Basra and, secondly, along the Turco-Persian frontier with special reference to the lazaret of Khanikin, have been briefly described. These are the two great routes by which travellers, goods and pilgrims enter Mesopotamia and the adjoining portions of Turkey in Asia from other countries. The number of pilgrims travelling by these routes is very considerable. Most people are aware of the great flow of Moslem pilgrims to Mecca and Medina, on the western side of the Arabian peninsula, but it is far from being generally realised that there is another great pilgrimage on the eastern side to the Shiah shrines of Mesopotamia, and that this pilgrimage is only second in importance to the Haj itself. In the present article an attempt will be made to describe some of the outstanding features of this Shiah pilgrimage with special reference to the dangers that it offers to the public health and the steps taken to meet those dangers.

Rightly to understand what follows some brief account of the origin and nature of the Shiah religion will be essential. This branch of Islam is almost as old as Mohammedanism itself. After the death of the Prophet in the year 632 A.D. (11 of the Hijra) the choice of his successor in the Caliphate led almost immediately to divergence of opinion, and ultimately to a deep and permanent schism. The Shiahs reject the Caliphates of Abu-Bakr, Omar and Othman, the first three successors of Mohammed, and regard Ali, the Prophet's cousin and son-in-law, as the first legitimate Caliph. The schism and wars which resulted from these conflicting claims may be read of in any of the many histories of Islam. They culminated in the assassination of Ali at Kufa, in the year 661 A.D. (40 of the Hijra) and later in the overthrow and death of Hussein, his son, with his small band of devoted adherents at Kerbela, on the 10th Muharrem, A.D. 680 (61 of the Hijra). The Shiahs have never ceased since to deplore and to commemorate in deploring these tragic events. Each year the months of Muharrem and Sefer are kept as months of sorrow and mourning, and these are at their highest or deepest on certain special days—notably the 10th Muharrem and other anniversaries of gloomy events in the Shiah annals. The Shiah is regarded by the Sunni, or orthodox Moslem, as a sectarian, and this seems to give an added air of detection to the followers of this branch of Islam.

A large number of sub-sects have arisen among the Shiahs in the course of twelve centuries. As many as 70 or 80 of these have been enumerated, but the large majority have lasted for a brief while only and have almost or quite ceased to exist. A recent authority[1] states that only five sect divisions are recognised—the Zaidias, the Kaisanias, the Ghallias, the Ismailias, and the Asna-Aasharias. But even of these the Zaidias have almost completely disappeared, only a few remaining in Asia and Africa (Morocco), the Kaisanias exist no longer, and the Ghallias are represented solely by a few followers in the mountains of Kurdistan. The Ismailias or Sabiyun have been divided into two groups, an eastern and a western. The latter are found only in the Yemen, in Egypt, and in Barcan, and they do not, it is said, make the pilgrimage to Kerbela and Nejef. But the eastern Ismailias form a considerable group, mainly represented by the Khojas of India, whose chief is the Agha Khan of Bombay, and they are devout pilgrims to the shrines of Irak-Arab.

The Asna-Aasharias are by far the most important of the Shiah groups, so important, indeed, that the learned authority just quoted writes that (apart from the Ismailias) "Asna-Aasharism has become synonymous with Shiaism." As their title indicates, they recognise 12 spiritual leaders or Imams, whose names are as follows:—

First Imam.—Ali, elected Caliph A.D. 656 (A.H. 35), assassinated at Kufa A.D. 661 (A.H. 40), buried at Nejef.

Second Imam.—Hassan, son of Ali, died and was buried at Medina A.D. 670 (A.H. 49).

Third Imam.—Hussein, brother of Hassan, killed near to Kerbela on the 10th Muharrem A.D. 680 (A.H. 61), buried at Kerbela.

Fourth Imam.—Zain-ul-Abadin, or Ali II., son of Hussein, died and was buried at Medina A.D. 694 (A.H. 75).

Fifth Imam.—Muhammad Bakir, son of the preceding, died and was buried at Medina A.D. 731 (A.H. 114).

Sixth Imam.—Jafer-es-Sadik, son of the preceding, died and was buried at Medina A.D. 765 (A.H. 148).

Seventh Imam.—Musa Kiazim, son of the preceding, died at Bagdad A.D. 799 (A.H. 183), buried at Kiazimein.

Eighth Imam.—Ali b. n Musa or Ali III., son of the preceding, died near to Meshed A.D. 818 (A.H. 203), buried at Meshed.

Ninth Imam.—Abu Jafer Muhammad, surnamed Al Jewad, or Al Taki, died at Bagdad A.D. 835 (A.H. 220), buried at Kiazimein.

Tenth Imam.—Ali-en Nasri or Ali IV., son of the preceding, died at Samara A.D. 867 (A.H. 254).

Eleventh Imam.—Hassan-el Askari, son of the preceding, died and was buried at Samara A.D. 873 (A.H. 260).

Twelfth Imam.—Muhammad b. n Hassan, or El Mahdi, son of the preceding, disappeared at Samara A.D. 878 (A.H. 265).

The twelfth Imam, El Mahdi, disappeared mysteriously in a grotto at Samara, on the Tigris, where he is still believed to be, and is expected to reappear shortly before the end of the world.

This list of names and dates summarises the history of Shiahism during the first two centuries of its existence, and the burial places of the Imams constitute to-day the goal of thousands of pilgrims, in life or after death, from many parts of the Moslem world. It will be seen that these burial-places include not only Medina, where lie buried the Prophet himself and four of the Imams, but also Kerbela and Nejef in the desert south of Bagdad, Kiazimein close to Bagdad, Samara on the Tigris, and Meshed in Northern Persia. Of these, Kerbela and Nejef are (apart from Medina) the most sacred cities for the Shiah faithful—Kerbela more particularly for the pilgrimage in life, and Nejef for burial, the pilgrimage after death.

The Nationality and Number of Shiah Pilgrims

Of the 10,000,000 inhabitants of Persia, four-fifths are thought to be Shiahs, and the Persian contingent to the Shiah pilgrimage outnumbers all others. Russia also sends each year a large number of pilgrims from her Asiatic provinces, more especially to Meshed, but many also to Kerbela and Nejef. The number arriving from India has varied in recent years with variations in the severity of the quarantine and other measures at Basra. After these measures were relaxed in 1912 the number of Indian Shiah pilgrims rose from insignificant figures to between 5000 and 6000. It is believed that of the 66,000,000 Moslem inhabitants of India, from one and a half to two millions are Shiahs. They are found mostly in Northern India, and are particularly numerous in Lucknow, Fainabad, Bombay, and Hardarabad (Deccan). The Khojas already mentioned are found in Bombay and in the mountains of Gilgit and Hunza. The Begums of Bombay are Shiahs, and so also are the Nawabs or other rulers of Rampur, Khairpur, Cambay, Junagadh, Murshidabad, and Mahmudabad, though the population of these states are mixed Sunni and Shiah. Smaller groups of pilgrims come from Afghanistan, from Baluchistan, from Mongolia, and from parts of Africa, but the largest groups of all come to Kerbela and Nejef from other parts of Turkish territory—from the valleys of the Tigris, Euphrates, and Shatt-el-Arab, from Kurdistan, and even, in very small numbers, from the Lebanon. In the vilayets of Bagdad and Basra alone (including in the latter the sanjak of Nejd or El Hasa in Eastern Arabia) the number of Shiah inhabitants is probably not far short of one and a half millions.

It is not easy to estimate even approximately the total number of persons who annually visit the Shiah shrines. Some record is kept of the arrivals of Shiah pilgrims on Turkish territory from other countries—mainly in the registers of the health offices at Basra and Khanikin and other points on the frontier of Persia. The following

[1] Articles I., II., and III. were published in THE LANCET of August 12th (p. 358) and 19th (p. 398) respectively.

[1] The Spirit of Islam, by Ameer Ali, Syed, M.A., C.I.E., Calcutta, 1891.

in the years 1817–21, which is a fraction over 74 for the stations in metropolitan areas, Scotland, Gibraltar, Malta, Ionian Islands, India, Jamaica, Bermuda, the Cape, West Africa, Canada, and St Helena Were we now at peace, the rate of death from disease in the Army of Great Britain would be below rather than above 2 6 per 1000, which was the rate in 1907–11 These figures are the measure of our scientific progress in medicine

EXPERIMENTS ON LIVING ANIMALS

AN abbreviated report has been issued by the Home Office showing the number of experiments under licences on living animals during the year 1915 Professor G D Thane, the chief inspector, states that 21 new places were registered for the performance of experiments and two places were removed from the register during the year Of the 21 new registered places 13 are laboratories connected with naval or military hospitals and sanitary institutions The total number of licensees is 664, of whom 322 performed no experiments The experiments reported are, as usual, grouped under two heads The total number of experiments other than those of the nature of simple inoculations, hypodermic injections, or similar proceedings is 2771 Of these there were performed under licence alone, 1505, under Certificate C, 275, under Certificate B, 782, and under Certificate B + EE, 209 The other group is devoted entirely to inoculations, hypodermic injections, and some few other proceedings performed without anæsthetics It includes 67,802 experiments, whereof there were performed under Certificate A., 67,521, under Certificate A + E, 270, and under Certificate A + F, 11 During the year 1915 11,657 experiments were performed by 14 licensees in the course of cancer investigations Seventy licensees report over 20,000 experiments which were performed for Government departments, county councils, municipal corporations, or other public health authorities Twelve licensees report nearly 25,000 experiments for the preparation and testing of antitoxic sera and vaccines and for the testing and standardising of drugs

STATE CONTROL OF THE LIQUOR TRADE

UNDER the above title the Temperance Legislation League has issued in pamphlet form a reprint of an article by Mr A Sherwell, M P, which was originally published in the *Spectator*, and at the time of its appearance attracted very favourable notice as a moderate and reasoned statement of the case for the nationalisation of the liquor trade As Mr Sherwell remarks, the war has totally changed the situation with regard to this problem, and no one, not even the most convinced individualist, would now be prepared to suggest that, in the matter of the drink question, a return to the *status quo ante bellum* is either desirable or practicable The success which has attended the policy of the Central Control Board has clearly shown in how large a measure the social evils of alcoholism can be abated by a reasonable system of regulation, and public opinion will certainly demand that the improvement in the national habits brought about under this influence shall not be allowed to lapse at the end of the war To maintain and develop that improvement, however, in face of the numerous and powerful forces making for reaction it is essential that the State should not be hampered in handling the question by the opposition of private interests The buying out of the liquor trade would be an immense financial operation, but that it is perfectly practicable, under conditions securing fair treatment of the private interests involved, is evident from the fact that the representative committee of experts appointed by the Treasury to consider the matter in the spring of 1915 had no difficulty in agreeing on a detailed scheme of purchase Mr Sherwell brings forward cogent arguments in support of the immediate adoption of this scheme or of some scheme on similar lines, and he further makes out a strong case for the direct control and management of the industry as a State monopoly It is interesting to note, from some expressions of opinion quoted at the end of the pamphlet, that even strong opponents of the principle of State and municipal trading recognise that the usual objections to that policy do not apply in the case of the liquor traffic Thus, the lack of energy in pushing business, which is frequently alleged as a special drawback in State trading, would in this instance be rather of the nature of an advantage, while the other stock objection to such enterprise—the increase in the number of Government servants, with the attendant risk of their organisation for personal aims—can hardly have much weight, seeing that these servants would replace a larger number of persons who have a direct pecuniary interest in the sale of alcohol It is satisfactory to observe that both Mr Sherwell and the public men whose comments on his views appear in the appendix to the pamphlet, are emphatic in their condemnation of the system of municipal control The political conditions of the moment appear to offer a unique opportunity for dealing with the liquor problem on national lines and without the distorting influences of party prejudice Mr Sherwell's brochure should do much to promote clear thinking on the question and we trust that it will be widely circulated

THE NEW POST OFFICE REGULATIONS FOR PATHOLOGICAL SPECIMENS

THE regulations concerning articles sent for medical examination or analysis have recently undergone some modification, and the amended regulations as now in force are given in Leaflet No 87 issued by the Secretary of the Post Office They will be found to give reasonable facilities for the sending of pathological material by post, which cannot be said to have been the case before Material may now be sent by the patient to a recognised medical laboratory or institute, and the packet, although it must be conspicuously marked "fragile with care" and bear the words "pathological specimen," need no longer have the name and address of the sender written on the outside The packet must be securely closed, but the regulations no longer require it to be hermetically sealed The submission of receptacles, if these are supplied by a laboratory or institute, for the approval of the Secretary of the Post Office, is now an instruction instead of a recommendation The remaining instructions are unchanged, and it is still inadmissible to send pathological specimens by parcel post We have inferred that the new regulations are much more reasonable than the old In practice, however, the difference may not be very apparent, as the amendment only gives official recognition to practices which have long been going on The old regulations had proved unworkable, and their non observance had been tolerated by the authorities

THE

SHIAH PILGRIMAGE AND THE SANITARY DEFENCES OF MESOPOTAMIA AND THE TURCO-PERSIAN FRONTIER

BY F G CLEMOW, M D EDIN, C M G,

BRITISH DELEGATE TO THE INTERNATIONAL BOARD OF HEALTH AND PHYSICIAN TO H.M EMBASSY CONSTANTINOPLE

IV [1]—THE PILGRIMAGE AND TRANSPORT OF BODIES TO THE SHIAH HOLY PLACES

IN the preceding articles the sanitary defences, firstly at Basra and, secondly, along the Turco-Persian frontier with special reference to the lazaret of Khanikin, have been briefly described These are the two great routes by which travellers, goods, and pilgrims enter Mesopotamia and the adjoining portions of Turkey in Asia from other countries The number of pilgrims travelling by these routes is very considerable Most people are aware of the great flow of Moslem pilgrims to Mecca and Medina on the western side of the Arabian peninsula, but it is far from being generally realised that there is another great pilgrimage on the eastern side, to the Shiah shrines of Mesopotamia, and that this pilgrimage is only second in importance to the Haj itself In the present article an attempt will be made to describe some of the outstanding features of this Shiah pilgrimage, with special reference to the dangers that it offers to the public health and the steps taken to meet those dangers

Rightly to understand what follows some brief account of the origin and nature of the Shiah religion will be essential This branch of Islam is almost as old as Mohammedanism itself. After the death of the Prophet in the year 632 A D (11 of the Hijra), the choice of his successor in the Caliphate led almost immediately to divergence of opinion and ultimately to a deep and permanent schism The Shiahs reject the Caliphates of Abu Bekr Omar and Othman, the first three successors of Mohammed, and regard Ali the Prophet's cousin and son in law as the first legitimate Caliph The schism and wars which resulted from these conflicting claims may be read of in any of the many histories of Islam. They culminated in the assassination of Ali at Kufa, in the year 661 A D (40 of the Hijra), and later in the overthrow and death of Hussein his son, with his small band of devoted adherents, at Kerbela, on the 10th Muharrem A D 680 (61 of the Hijra) The Shiahs have never ceased since to deplore and to commemorate in deploring, these tragic events Each year the months of Muharrem and Sefer are kept as months of sorrow and mourning and these are at their highest or deepest on certain special days—notably the 10th Muharrem and other anniversaries of gloomy events in the Shiah annals The Shiah is regarded by the Sunni, or orthodox Moslem as a sectarian and this seems to give an added air of dejection to the followers of this branch of Islam

A large number of sub-sects have arisen among the Shiahs in the course of twelve centuries As many as 70 or 80 of these have been enumerated, but the large majority have lasted for a brief while only and have almost or quite ceased to exist A recent authority [2] states that only five such divisions are recognised—the Zaidias the Kaisanias the Ghallias, the Ismailias and the Asna Aasharias But even of these the Zaidias have almost completely disappeared only a few remaining in Asia and Africa (Morocco), the Kaisanias exist no longer, and the Ghallias are represented solely by a few followers in the mountains of Kurdistan The Ismailias or Sabloun, have been divided into two groups an eastern and a western The latter are found only in the Yemen in Egypt and in Barbary, and they do not it is said make the pilgrimage to Kerbela and Nejef But the eastern Ismailias form a considerable group, mainly represented by the Khojas of India, whose chief is the Agha Khan of Bombay and they are devout pilgrims to the shrines of Irak Arabi

The Asna Aasharias are by far the most important of the Shiah groups, so important indeed, that the learned authority just quoted writes that (apart from the Ismailias) 'Asna Aasharias has become synonymous with Shiahism' As their title indicates, they recognise 12 spiritual leaders, or Imams, whose names are as follows —

First Imam —Ali, elected Caliph A D 655 (A.H 34), assassinated at Kufa A D 661 (A H 40) buried at Nejef

Second Imam —Hassan, son of Ali, died and was buried at Medina A D 670 (A H. 49)

Third Imam —Hussein, brother of Hassan, killed near to Kerbela on the 10th Muharrem, A D 680 (A.H 61), buried at Kerbela

Fourth Imam —Zain ul Abadin, or Ali II, son of Hussein, died and was buried at Medina A D 694 (A.H 75)

Fifth Imam —Muhammad Bakir, son of the preceding, died and was buried at Medina A D 731 (A.H 114)

Sixth Imam —Jafer es Sadik, son of the preceding, died and was buried at Medina A D 765 (A H 148)

Seventh Imam —Musa Kiazim, son of the preceding, died at Bagdad A.D 799 (A H 183), buried at Kiazimein

Eighth Imam —Ali bin Musa, or Ali III, son of the preceding, died near to Meshed A.D 818 (A.H 203), buried at Meshed

Ninth Imam —Abu Jafer Muhammad, surnamed Al Jewad, or Al Taki, died at Bagdad A D 835 (A.H 220), buried at Kiazimein

Tenth Imam —Ali-en Naki, or Ali IV, son of the preceding, died at Samara A.D 867 (A H 254)

Eleventh Imam —Hassan-el Askari son of the preceding, died and was buried at Samara A.D 873 (A.H 260)

Twelfth Imam —Muhammad bin Hassan or El Mahdi, son of the preceding, disappeared at Samara A.D 878 (A H 265).

The twelfth Imam El Mahdi disappeared mysteriously in a grotto at Samara, on the Tigris, where he is still believed to be and is expected to reappear shortly before the end of the world

This list of names and dates summarises the history of Shiahism during the first two centuries of its existence, and the burial places of the Imams constitute to-day the goal of thousands of pilgrims, in life or after death, from many parts of the Moslem world It will be seen that these burial-places include not only Medina where lie buried the Prophet himself and four of the Imams, but also Kerbela and Nejef, in the desert south of Bagdad, Kiazimein close to Bagdad, Samara on the Tigris and Meshed in Northern Persia Of these Kerbela and Nejef are (apart from Medina) the most sacred cities for the Shiah faithful—Kerbela more particularly for the pilgrimage in life, and Nejef for burial, the pilgrimage after death

The Nationality and Number of Shiah Pilgrims

Of the 10 000 000 inhabitants of Persia, four fifths are thought to be Shiahs, and the Persian contingent to the Shiah pilgrimage outnumbers all others Russia also sends each year a large number of pilgrims from her Asiatic provinces, more especially to Meshed but many also to Kerbela and Nejef The number arriving from India has varied in recent years with variations in the severity of the quarantine and other measures at Basra After these measures were relaxed in 1912 the number of Indian Shiah pilgrims rose from insignificant figures to between 5000 and 6000 It is believed that of the 66,000,000 Moslem inhabitants of India, from one and a half to two millions are Shiahs They are found mostly in Northern India and are particularly numerous in Lucknow Faizabad, Bombay, and Haidarabad (Deccan) The Khojas, already mentioned, are found in Bombay and in the mountains of Gilgit and Hanza The Borahs of Bombay are Shiahs and so also are the Nawabs or other rulers of Rampur Khairpur, Cambay, Junagadh Murshidabad, and Mahmudabad, though the population of these states are mixed Sunni and Shiah. Smaller groups of pilgrims come from Afghanistan from Baluchistan, from Mongolia, and from parts of Africa, but the largest groups of all come to Kerbela and Nejef from other parts of Turkish territory—from the valleys of the Tigris, Euphrates, and Shatt-ul Arab, from Kurdistan, and even in very small numbers, from the Lebanon In the vilayets of Bagdad and Basra alone (including in the latter the *sanjak* of Nejd or El Hasa in Eastern Arabia) the number of Shiah inhabitants is probably not far short of one and a half millions.

It is not easy to estimate even approximately the total number of persons who annually visit the Shiah shrines Some record is kept of the arrivals of Shiah pilgrims on Turkish territory from other countries—mainly in the registers of the health offices at Basra and Khanikin and other points on the frontier of Persia. The following

[1] Articles I II and III were published in THE LANCET of August 12th (p. 289) and 19th (p 333) respectively

[2] The Spirit of Islam by Ameer Ali Syed M.A. C I E Calcutta, 1902.

table shows the numbers of arrivals by the land frontier (southern two thirds) and Basra respectively during the year 1903–13 —

Year	Persian frontier	Basra	Totals	Year	Persian frontier	Basra.	Totals
1903–4	53 474	1183	54 657	1909–10	32 386	1721	34 107
1904–5	13 400	1903	15,303	1910–11	57 379	2115	59 494
1905–6	69 300	4471	73 771	1911–12	32,021	4309	36 330
1906–7	49 351	5445	54 796	1912–13	43 777	8101	51 878
1907–8	33 897	2544	36 441				
1908–9	35 322	1552	36 874	Averages	42,031	3334	45,365

It will be seen that the totals varied between 15,000 and 73,000 The minimum occurred in 1904–5, and was the consequence of the prohibition of the pilgrimage from Persia, where cholera was severely epidemic at the time, and the maximum fell in the following year, and was the result of the removal of that prohibition If to the above figures be added the numbers of pilgrims from Turkish territory the totals will be greatly swollen, and the assertion of local observers that 80,000 or 100,000 pilgrims are sometimes collected simultaneously in Kerbela may well be true Many Shiahs perform the pilgrimage more than once in their life time, and the inhabitants of Bagdad flock weekly—especially on Saturdays—to the great mosque of Kiazimein, one of the principal Shiah cities, only 40 minutes' distance from Bagdad, with which it is connected by a primitive tramline

Routes Followed by the Pilgrims

The large majority of pilgrims pass through Bagdad Those who come from foreign countries by sea arrive at Basra, and travel thence, by river steamer, to Bagdad though a few ascend the Shatt-ul Arab and Euphrates by sailing boat and land at Kufa, Shenafieh, Kifl, or some other place near to Kerbela or Nejef Those who cross the frontier do so mostly at Khanikin and descend thence to Bagdad by the route mentioned in the preceding article From Bagdad they travel in two days, to Kerbela crossing the Euphrates at Musseyib (not far above the spot where the great dam or barrage was recently built for Turkey by an English firm), and from Kerbela to Nejef is another two days' journey southwards

It is unnecessary to describe here the many other secondary routes by which pilgrims travel, and impossible to trace the many devious roads followed by pilgrims or bearers of dead bodies "in contraband"—a subject to be referred to later

The Season of Pilgrimage

Since the Shiah pilgrimage may be made at any portion of the Moslem year, the majority of pilgrims choose the months of autumn and early winter, when the harvest in their own country is gathered in and when the great heats of summer are over But there are certain days of the Moslem year[3] for which they prefer if possible to time their pilgrimage As already stated, the months of Muharrem and Sefer have a special sanctity, and there are certain red letter days (too numerous to name here) for each of the principal Shiah cities

The Shiah Shrines Sanitary Conditions in the Holy Cities

In each of the Shiah cities is one or more large mosques built over the tomb of an Imam No giaour is permitted to enter even the outer courtyard of these mosques, but from the glimpses that may be had of them from afar there is no doubt that they are noble specimens of Moslem architecture The great central dome and the two to four minarets are in most instances covered with gold, and the coloured tiles lavishly used in the scheme of decoration are remarkable, even for the East

No less remarkable are the insanitary conditions found prevailing in these cities The narrow and tortuous streets are ill kept and often deep in mud of a most offensive kind The houses are badly ventilated and overcrowded In all the larger houses are found underground chambers, or *serdabs*, where the inhabitants may escape from the great heats of summer, many are 40 or 50, and some even 80 or 100 feet below the ground If report be true these cellars are often the scenes of unspeakable vices

The water supply of Nejef is of three kinds Firstly, many houses have wells, the water is found at from 25 to 35 metres below the surface, it is hard and brackish Secondly, there is what is known as the *birkjé* water which is brought from the Shatt ul-Kufa, a branch of the Euphrates, by means of a canal This canal formerly communicated with the Bahr i Nejef, to be mentioned later, it now ends in a small pool This water is usually stored in a tank or cistern in the houses, and is used for every conceivable purpose It appears to be regarded as possessing some special sanctity, and a drinking vessel that has been used by an infidel is washed three times in this water before being regarded as pure for Shiah use The tanks are only emptied at long intervals, when the water is unspeakably foul, the Nejef health officer informed the author that, after one of these tanks had been emptied into the street, it was impossible to pass near the pool thus formed for some two weeks, so offensive had the water become The third source of water is the Shatt-ul Kufa itself at Kufa, it is only used by a few of the more wealthy inhabitants

There are no drains in Kerbela or Nejef, and most houses have cesspools It is not surprising that many diseases are rife in these cities Malaria prevails all along the Euphrates and its many branches, but at Nejef, which is built on a low hill, it is of no great frequency It was formerly much more so owing to the marshes around the Bahr i Nejef, or "Sea of Nejef." This was formerly a large lake, and is still marked as such on many maps, but within recent years it has been reduced to a small sheet of water, known as the Bahr i Shenafieh, and the drying up of the marshes around it has led to a great improvement in the health conditions of the district Enteric fever is excessively prevalent in these towns Typhus, however, is rarely seen Tubercular disease in all its forms is rife both in Kerbela and Nejef and so also are dysentery, syphilis, and many other diseases The 'Bagdad boil" or "button" is seen, but is not common, and leprosy seems to be rare

The Transport of Dead Bodies to the Shiah Cities

This constitutes the most striking feature of the Shiah religion Every Shiah desires to be buried in one of the holy cities of which Nejef is considered the most sacred. The majority of bodies come by land, either from Persia or from Turkish territory, a few come by sea to Basra Their numbers have varied within wide limits Thus in 1904–5, when the pilgrimage and carriage of bodies from Persia were prohibited for a season only 146 bodies were registered at all the Turkish health offices of Mesopotamia, in 1912–13, on the other hand, the total rose to 7558 In the ten years 1903–13 the average number registered was 5304

Bodies are classified as "fresh" or "dry" In principle no bodies are supposed to be admitted to the holy cities if death has occurred less than three years before, but exception is made for the bodies of persons dying within a 12 hours' journey of the burial places whose bodies are admitted in a "fresh" state Fresh bodies arrive either in light wooden coffins, or in shrouds, or in bundles of reeds tied with cords "Dry" bodies are carried in sacks of canvas or leather or in boxes Occasionally a body in the skeleton state is seen, every bone of which is separately wrapped in cotton wool, these usually come from Baku on the Caspian Bodies generally arrive in small groups with little ceremony, but occasionally a group of one or two hundred may be met with travelling with considerable pomp

On arriving in the outskirts of Nejef the bodies are first deposited in a small enclosure, or morgue, built in the desert near the town Here the taxes are collected, the bodies are removed from their outer wrappings or coffins, and placed in large coffins belonging to the *defnieh* department (the nature of which will be defined shortly) The other wrappings and coffins are burnt by the health officials, in the desert near to the morgue The Commission was consulted as to the necessity of continuing this system of incineration The *labads* or *shibna*—i.e the shrouds around the coffins—are often of considerable value, and the wood of the coffins would be precious in these regions, where trees are unknown and all wood has to be imported The local authorities were anxious for permission to arrange for

[3] The Moslem year being composed of 12 lunar months, is 11 days shorter than the solar year Hence Moslem festivals recurring 11 days earlier each year may fall in any of the four seasons The 12 lunar months are as follows Muharrem, Sefer Rebi ul Evvel Rebi ul Akhir Jumazi ul Evvel Jumazi ul Akhir Rejeb Shaban Ramazan Sheval Zilkadé and Zilhidjé The present Moslem year (A.H 1334) began on Nov 9th 1915 and will end on Oct 27th 1916

the preliminary disinfection of the coffins, which they then proposed to sell, the revenue thus obtained would, they claimed, enable the local health authority to put up a steam disinfecting stove, in which the shrouds could also be disinfected and afterwards sold Some such form of disinfection was attempted a few years ago but it led to serious abuses and was abandoned The Commission definitely condemned a return to the former system The practical difficulties in the way of properly disinfecting a large number of coffins and shrouds would be considerable and for obvious reasons, incineration is the only proper fate of such objects

The bodies remain in the morgue until the ceremonial washing the payment of dues and other formalities are completed. It is forbidden to take any body into a house in the town, but many pilgrims—notably those from Baku already mentioned—are so attached to their relatives' remains that nothing will prevent them from taking these into the town The majority of bodies are carried from the morgue to the mosque in the centre of the city, where they make the tour of the Sahn i Sherif, or outer courtyard of the mosque This ceremony is the equivalent for the deceased of a *ziaret*, or religious visitation during life The *hamals*, or porters, who carry the bodies are paid anything from a few piastres up to one or two Turkish pounds (a Turkish pound has the value of 18*s*), according to the wealth of the deceased. If the relatives are present they will themselves carry the body and it is a meritorious action for a Shiah passer by to lend his shoulder, if only for a few paces, to this pilgrimage after death of a brother Shiah. When the *ziaret* and all other formalities are completed the bodies are finally deposited in the *serdabs*, or tombs, around the mosque or in the cemetery outside the town, or in one of the many private tombs found within the town walls

(To be continued.)

THE CENTRAL COUNCIL FOR DISTRICT NURSING IN LONDON [1]

THE Organisation Subcommittee of the Central Council for District Nursing in London has drawn up a report which was approved by the Executive Committee on June 7th last A conference with the medical officers of health of the metropolis was held on April 12th, from which, and from information furnished by the nursing associations it appears that although the need is fully recognised little has as yet been done to give practical effect in the metropolis to the powers conferred on sanitary authorities by the Notification of Measles Order—namely, to provide medical attendance including nursing for the poorer inhabitants Nevertheless some commencement has been made and a statement of what has so far been accomplished is summarised as follows in an appendix to the report

District Nursing of Measles

Battersea—The borough council has made an arrangement with the South London Nursing Association to attend certain infectious diseases when necessary of which measles is one

Chelsea—The medical officer of health has recommended a scheme to the borough council under which the Chelsea District Nursing Association will supply trained nurses to visit notified cases of measles Cases requiring nursing assistance would be referred to the medical officer of health who would give the necessary sanction. The Association would provide the nurse to give any nursing assistance necessary but such assistance would only be provided when a doctor is in attendance. The association would be paid £10 per annum by the borough council and an additional sum of 10*d* for each visit exceeding 2·0 in any one year If there should be no measles the medical officer of health proposes to use the nurses supplied by the Association for other cases of illness in young children—e g., whooping-cough summer diarrhœa ophthalmia neonatorum

Holborn.—The medical officer of health writes that cases of measles and German measles are first of all visited by the lady sanitary inspector and arrangements have been made with the Bloomsbury nurses for the nursing of the poorest cases

Kensington—The borough council have approved a recommendation "That an arrangement be entered into with the Kensington District Nursing Association for one year whereby in the event of an epidemic of measles the services of the Association's nurses shall be available for the visiting and where required for the nursing of patients of the poorer class it being understood that visits will only be paid at the instance of the medical officer of health and that in every instance the relatives of the patient will be urged to secure the advice of a medical practitioner or of the Poor Law Medical Officer"

Penge—The Urban District Council has agreed with the Ranyard Nurses for a nurse in case of an epidemic. They would pay £2 a week for this full time nurse when she is employed

St Pancras—An attempt is being made to provide through the Mayoress's Nursing Fund for Sick Children a special nurse to look after cases of measles as soon as they are notified This scheme which is under the supervision of the Medical Officer of Health includes where necessary the gratuitous provision of essentials such as nourishment fuel &c. The scheme is being tested in Wards 5 and 6 and a small part of Ward 3 situated in the centre of the borough The St. Pancras Dispensary which already has a special department for the care of children, has consented to act as the centre for the work, and to coöperate as far as possible It is estimated that the cost of working the district chosen through an epidemic would be £300 An arrangement has been entered into with the Bloomsbury Nurses for a part of the area and with the Central St. Pancras Nursing Association for another part. The North London Nursing Association also attends certain of the cases

Shoreditch and Bethnal Green—Nursing is carried out by the District Nursing Association. The superintendent of the Association obtains a list from the medical officer of health each morning of cases considered suitable for nursing The Association is paid 6*d* for each visit The details as to supplying nurses are left to the Association but it is understood that a definite part of one nurse's time is set apart for this work, even if she does not give her whole time to it.

Westminster—The medical officer of health reports in regard to the first quarter of 1916 In four instances [of measles] the visitors found the nursing at home insufficient and district nurses were called in at their request In three of the cases the nurses paid sixteen thirty three and twenty nine visits respectively Two were in the same family and the illnesses were concurrent for ten days"

Negotiations are also taking place between various medical officers of health and district nursing associations notably in Bermondsey Paddington Wandsworth and Woolwich

Special attention is called to the interesting experiment initiated by the Mayoress's Fund in the metropolitan borough of St Pancras Some hesitancy has been felt in regard to the possible cost, and the subcommittee's statement is of importance that experience has already shown that by systematic management the cost may be kept within quite moderate and practicable limits Until further experience has been obtained doubt is expressed as to the expediency of recommending a uniform standard for adoption by the district nursing associations of the metropolis With regard to the cost, the statement is made that if the whole time services of a nurse are contracted for per week or by the year the annual cost of a district nurse in London is estimated at about £110 on average, inclusive of administrative expenses equivalent to, say, 2 guineas per week. The average cost of the district-nursing of ordinary cases of sickness works out at about 8*d* per nursing visit

The committee recommend the desirability of making arrangements for the mutual assistance of nursing associations by the loan of nurses as reliefs in times of epidemic stress Experience shows that epidemics do not fall with simultaneous uniformity on the whole metropolis, and also that the heaviest attack on a given area is limited to a period of a few weeks or, at the most, to two or three months of the whole year This inequality of stress, as well as the long interval between one epidemic and another (about two years in London) would necessarily render the maintenance by a sanitary authority of a permanent staff of nurses for the purpose a difficult and costly matter

As it appears that the provisions relating to public assistance in regard to maternity and the welfare of young children do not enable any aid from Exchequer grants to be given towards nursing it is necessary for voluntary effort and charity to fill the gap In response to an appeal the committee have already received some contributions for this purpose If these prove to be sufficient it is proposed that grants-in aid of the district nursing of measles among other diseases should be given by the Central Council in aid of local effort through the District Nursing Associations

The report ends with an appeal. In normal times the object is one which would not fail to secure general and generous support In this crisis of our national life the duty of saving young lives is more clearly than ever a primary one, and the support should not be lacking

[1] London P S King and Son 1916. Price 1*d* The First Annual Report was noticed in THE LANCET of March 4th 1916 p 525.

SMILEY COTTAGE HOSPITAL, LARNE—The report of this well-equipped hospital for the year ended June 30th, 1916, shows that a large portion of the institution has been set apart for the use, when needed, of the sailors defending the surrounding shores The patients admitted were medical 195 and surgical 127 Of those in the hospital during the year there were 293 males and 29 females The Dowager Lady Smiley, whose husband, the late Sir Hugh Smiley, founded the institution, gave eight new beds fully furnished and provided numerous other gifts during the year The amount of work for the matron and nurses has increased yet by judicious management the extra cost has been small

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

THE following appointments have been notified —Fleet-Surgeon A X Lavertine to *Egmont* and for Tenders Staff Surgeons H A Kellond Knight to *Pembroke*, additional, N S Meiklejohn and H M Whelan, both to *Vivid* L F Cope to *Victory*, W W D Chilcott to *Vivid*, additional, for disposal, and A. H S Richardson to *Vivid* Surgeons L Priston to *Victory*, additional, for disposal J A Adams to *Victory*, additional, for disposal, H St C Colson to *Victory* and C H Symons to *Pembroke* Surgeons (temporary) D McAlpine to *Pembroke*, additional, J C Baggs to *President*, additional, T E Francis to the Hospital Ship *Soudan*, H T S McClintock to *Britannia*, J F M Campbell to *Wildfire* additional, for disposal, G Cochrane to *Victory*, F H S Greenish to Haslar Hospital, R H Rae to Chatham Hospital, C J C Faill to Plymouth Hospital, R A. Hobbs to *Pembroke* R K. Ford to *Leviathan*, E O Morrison to Haslar Hospital, and D M Connan to *Queen Elizabeth*

T E Ashley to be temporary Surgeon

ROYAL NAVAL VOLUNTEER RESERVE

Surgeon Probationer J G Campbell to *Wolverine*

ARMY MEDICAL SERVICE

Lieutenant-Colonels to be temporary Colonels whilst Assistant Directors of Medical Services of Divisions G W Tate and F E Gunter

Colonel W H Horrocks, K.H.S, is retained on the Active List, under the provisions of Arts 120 and 522, Royal Warrant for Pay and Promotion, and to be supernumerary

Temporary Honorary Lieutenant-Colonel P Sargent to be temporary Colonel whilst employed as a Consulting Surgeon to the British Armies in France

Captain R W D Leslie is granted the local rank of Major whilst employed on embarkation duties

Temporary Lieutenant Watkin Watkins is dismissed the Service by sentence of a General Court Martial

Captain R L Guthrie to be temporary Major whilst in charge of Fulham Military Hospital

Temporary Captain K. F Sonntag relinquishes his commission

ROYAL ARMY MEDICAL CORPS

Surgeon Lieutenant Aldington G Curphey to be Surgeon Captain

Captains, R A.M C (T.F), to be temporary Majors G H Colt and A. W Falconer

W J Richard to be temporary Honorary Major whilst employed at the Merryflats War Hospital

Major (Brevet Lieutenant-Colonel) W Hind to be temporary Major

To be temporary Captain Temporary Captain C C Forsyth, from the Seaforth Highlanders

Temporary Lieutenants to be temporary Captains E Mapother, W P Taylor, R W Buchanan, J Purcell, J B Milne, C Rutherford, D McIntyre, W R Thomas, J Green, W J Deadman, L H Leeson, A Brown, H E Thomas, J F J Herbert, N S Whitton, R W Valentine, W Campbell, J V Holmes, R MacDonald, E G M Gilchrist, W H Thresher, B B Metcalfe, F C Mathew, G Redpath, J V Cope, G A Upcott-Gill, J G Thomson, W Hutcheson, J Brown Sim, N Macleod, E A Lindsay, A Patrick, F B Martin, F H Bowen, I Wilson, J A Doull, H S Tait, W B Honey, W A Proud, R J P McCullough, E Sheffield, S L Alexander, R J Kee, W V Coffyn, P A Sullivan, R Rimmer, D G Gardiner, C G Harmer, A H Watson, W J Knight, C B Macdonald, J Rodger, H H Scott, A. H Huycke, W W Galbraith, R A. Mansell, R S Ross, D J Dauth, J F Matheson, G E Keith, R Cox, E M B Payne, J C Robertson C L Sproule, C Kidd, J Dunlop, and A. Benjamin, N Instone, C P S Allingham, O F McCarthy, O J F C Greenidge, A. G Glass, J C Watson, A G Cook L Horsley F A. M Flegg, C A. E Ring, F A Anderson, S H Harris, M Dobbs, A Cowes, W Sansom, E Newton, O M de Jong, W H F F Godwin, A L Martyn, J R Polson, E Montgomery, A G Clark, D McNeill, R S Gibson, D S Campbell, J K. Rennie, I M Byers, H G Parker, A H Parkinson T J W Swinburne, F L Webster, N J H Gavin, E F Bashford, W Kelley Patterson, W E Passmore, L Gibbons, C A. Wickham M Clover, R E Ingram-Johnson, R C Poyser, A. Scott, D McFarlane, P H Day, C de Z Marshall, W S Sprent, G G Lyttle, J M Wishart I A. Clarke, A. F Millar, S J Cowell, H. L G Hughes, J S Alexander, T W Sheldon, M Coghlan, P MacD Little, G S Clark, W A. Young C Dickson, W J Gibson, J Walker, R Wilson, H B L Henderson, G C Gavnor D J Glen, G Joughin, L J Lock, P R Boswell, A. U Webster, C R Chichester, B C Powell, W R L Waters, F P Montgomery R B Robson, B Whitehead, H McIntyre N A. Scott, J V Bates, J V Duffy, J P, O'Hea, A. W Rowe, F V Cant, R W Hodgson-Jones, J Hepburn, H Pringle C W S Davies-Jones, R A W Proctor, W J Hogg, J B Tombleson, A. A Skeels, C J Stanley, H S Laird, E Biddle V E Lloyd, J M Richie, S E Y Elliot, A Willatt W Waddell, J L Russell, K N Perkis, E B Jones, P G Milne, W Campbell, J C T Teggart, A. J Ireland, D Craig, and E W D Hardy

To be Lieutenants F J Murphy and W O F Sinclair

To be temporary Lieutenants E T Jameson, N S Carmichael, Lieutenant W C Connell (C A M C), V E Somerset, M E Delafield, H L Messenger, A M Watts, A Dingwall, S P Pollard, J I Baëza, J W Applegate R H S Marshall, P Rose, J C M Bailey, R K G Graves, A. L Husband, temporary Honorary Lieutenant H K G Hodgson, temporary Honorary Lieutenant D S Pracy, temporary Honorary Lieutenant P S Clarke, C H Cox, F Newey, B H Swift, D L Spence, H B Scargill, E G B Carpenter, temporary Honorary Lieutenant N N Haysom, temporary Honorary Lieutenant E G Howell, H N Eccles, W Howat, J Brunton, Lieutenant J R Kerr Canadian A.M C, temporary Honorary Lieutenant L W Evans, temporary Honorary Lieutenant K. D Atteridge, C H Comerford, W Dickey, G Elam, B W Howell, R J Mackessack, R Govan, H P Miles, P Pollard, J A Renshaw, J Loftus, R H. Hadfield, W I Adams, A. H H Howard, D J Foley, D G S Gartshore, J Mellor, L C Blackstone, C S U Rippon, C J Brookes, H D Stewart, A Fothergill, R Jones, A F Martin, W S Kidd, H V Taylor D Penman, W McM Millar, L Laurie, H. I Pinches, H H Butcher, H F Bellamy, D North, H B McCaskie, H L Craig, R F Moore, J L Birley, H. W Heasman, H Nicol R H. Jamieson, J Wright A. W Kendall, M Waldron M Colt, R H Cotton, J Macfadyen, H. H. Hiley, E W Squire, C W Gittens, J C Clayton, A J S Pinchin, M L Hine, G Rainford, F E Wayte, J G Johnstone, J H Bankes, M C Stark, J S F Weir, J Finnegan, E J Roberts, C D Day, H V O'Shea, E B Appleby, E Evans, F G Hack, A. H Muir T Whitehead, T Coogan, G L Irwin, H. P Aubrey, W H W Attlee, J M Anderson, J W Steel, V D C Wakeford, H E H Mitchell C B Hutchison, M. M. Woods A P Adams I. M Edis, S F Fouracre, R W Annison, W R Harris, W McQuiban, C J C Macquarie, N W Rawlings, J E Middlemiss, J J Gilmore, K. H. Stokes, H S Knight, W A. Simpson, R E Collins, C M Young, S C H. Bent, J H. Stephens, W B Thomson, A C Murray, F E L Phillips, F M Gardner Medwin, V P G Fedrick, G E E Nicholls, N F Stallard, J E Sharp, J Warnock, P C V Bent, V T C Bent, W R Swete Evans, E H B Oram, R S Doran A. B Ross, G Lewin, E P Dewar, J A S Burges, G Viner, J P P Inglis, temporary Honorary Lieutenant D C Norris, J E P Shera, J D S Sinclair, P Wallice, N C Lake, F W Stuart, C F Graves, W H Gray, W T Melling, G Holman, W Warnock, J G Fleming, J B Martin, W Gault, D I Connolly, F W Perry, P J Carroll, J A. H White G F Page, T Dunlop, O R Belcher, A. Reeves, A S Holden, W H Duncan, M C Naylor, A. A. Henderson, W A. Reynolds, J A Ure, A. Atkinson, T Smith, W T Dobson, W L Clements, J C Scott, C C Morgan, A. W P Pirie, V St Leger Pinnock, N Davidson H G Brown, A C Craighead, T L Henderson, A Kerr, W C Fraser, K. McLay, W W Johns, J Findlay, A. Macrae, W C Lodwidge, and T H Underhill

Temporary Lieutenants relinquishing their commissions F W Doak, E T Jameson G H L Armstrong A F M Mullane T F Wilson, S McCormac H Kirkland Whittaker, W S Badger, T Divine, E J Chambers, A. B MacA. Thomson, A H Cran, A L Saunders, K B Pinson, F Green, A. F Studdert, A. R Young, J C Spillane, R J Attridge, J Wallace, A B J Coope, H F Hutchinson, J White, J Pritchard, W Turner, J P Whetter, W Yorke, R O Bridgman, E F Watson, N B Taylor J G R Stone, J H. Rutter, L J Legris, F C Ellison, R J Harley, G W Hardy, D R Alexander, A. G Waddell, G R D Lyon A. Wood, W A. Smith, C W Green, C C Gibson, W J Logie, T C Drew, J Reid, G Kalichman, A T Embury, W A. Henderson, F J Ellis, F W Hart, G Belfie, L G Nash, and W Young

Temporary Lieutenant G Stonehouse relinquishes his commission on account of ill health

Temporary Lieutenant C C Mecredy relinquishes his commission on appointment to the Indian Medical Service

SPECIAL RESERVE OF OFFICERS

Royal Army Medical Corps

To be Lieutenants M C Cooper, A G Harsant J J Murphy, E H. V Hensley, M St C Hamilton E T Gaspey, J P Bracken, H M C Macauley, R C Devonport and P R E Kirby (from the University of London O T C), W C Borne, A. F Cook, and A. R Steven (from Glasgow University O T C), W A Malone (from Royal College of Surgeons in Ireland O T C), A. Johnstone and G S Mather (from Aberdeen University O T C), J Ross (from Edinburgh University O T C), A. C Dicker (from

Queen's University, Belfast O T C) W Griffiths H M Wharry, R. H C Pryn, and J C Preston

Lieutenant (on probation) N A Martin is confirmed in his rank.

Attached to Units other than Medical Units—The undermentioned Captains from a General Hospital to be Captains F Harvey G E Martin, S Haveloch and C H Keay To be Captains Lieutenant A. N Worsley and Lieutenant J P Clarke J S Ranson to be Lieutenant

Supplementary to Regular Units or Corps—C C Harrison from University of London Officers Training Corps to be Lieutenant

Supernumerary for service with the Officers Training Corps—Lieutenant A Macphail, from Attached to Units other than Medical Units to be Lieutenant for service with the Medical Unit of the University of London Contingent, Senior Division, Officers Training Corps

TERRITORIAL FORCE

Army Medical Service

Lieutenant-Colonel E V Gosling, East Anglian Field Ambulance to be Assistant Director of Medical Services East Anglian Division with the temporary rank of Colonel

Major E L Anderson from Welsh Field Ambulance to be Deputy Assistant Director of Medical Services, Welsh Division

Captain A H. Hogarth to be Major

Royal Army Medical Corps

Notts and Derby Mounted Brigade Field Ambulance S F H Everill late Lieutenant, Worcester and Warwick Artillery (Volunteers) to be Lieutenant

North Midland Field Ambulance Lieutenant (temporary Captain) A. C F Turner to be Captain

1st South Midland Mounted Brigade Field Ambulance Captain S P Johnson relinquishes his commission on account of ill health

South Midland Field Ambulance Captain R A. Kerr from Attached to Units other than Medical Units to be Captain

West Riding Field Ambulances Major (temporary Lieutenant Colonel) H Collinson to be Lieutenant-Colonel Captain T Whitelaw from a General Hospital to be Captain Captain H D Pickles, from a General Hospital to be Captain Captain R P Anderson from a General Hospital to be Captain

Northern General Hospital Captain A Ellison is seconded for duty with West Yorkshire Regiment

East Anglian Field Ambulance Lieutenant-Colonel E V Gosling is seconded whilst holding the appointment of Assistant Director of Medical Services Lieutenant A D Reid to be Captain Captain (temporary Lieutenant-Colonel) J R Pooler reverts to the temporary rank of Major on ceasing to command a Field Ambulance

Eastern Mounted Brigade Field Ambulance Major W Archibald to be temporary Lieutenant-Colonel whilst commanding a Field Ambulance Captain G A G Bonser, from a General Hospital to be Captain

London Field Ambulance Major R Corfe to be temporary Lieutenant-Colonel whilst commanding a Field Ambulance

Eastern General Hospital Lieutenant G A G Bonser to be Captain

Sanitary Service Major A H Hogarth, from Army Medical Services to be Sanitary Officer Southern Army

London Sanitary Companies To be Captains Lieutenant H Vickers J Teare and F E W Rogers. The date of appointment of Cressere George Moore as Lieutenant is August 16th 1914 and not as announced in the *Gazette* of June 16 h 1916 Lieutenants (temporary Captains) to be Captains with precedence next below Captain S R O Dudfield and in the following order C G Moor E C Sprawson A. T Pitts Lieutenant E B Argles, and Lieutenant S Summerson

Highland Field Ambulance To be Lieutenants J Steele and Douglas Lyon

4th Southern General Hospital Major W L Woollcombe relinquishes his commission on account of ill health

East Lancashire Field Ambulance J S Cooper to be Lieutenant

Northumbrian Field Ambulance Captain E W Martin from Attached to Units other than Medical Units to be Captain J Rosenewige to be Lieutenant

Home Counties Field Ambulance Lieutenant R H Hardwick to be Captain

Attached to Units other than Medical Units—Captain H M Soden and Captain R Paterson relinquish their commissions on account of ill health Captain R L Guthrie is seconded while holding a temporary commission in the Royal Army Medical Corps Major R B Sidebotom from Army Medical Services to be Major

COLONIAL MEDICAL SERVICES

West African Medical Staff—Transfers and Promotions Dr R Laurie Sanitary Officer Nigeria to be Senior Sanitary Officer Sierra Leone Mr H P Lobb Senior Medical Officer to be Provincial Medical Officer Nigeria (Northern Provinces) Dr J Currie Medical Officer, Southern Provinces to be Senior Medical Officer, Northern Provinces, Nigeria Mr F J A Beringer, Sanitary Officer transferred from Sierra Leone to Nigeria (Southern Provinces) Dr W A. Nicholson and Dr E J Powell, Medical Officers transferred from Sierra Leone to Nigeria, and Mr J S Pearson from Sierra Leone to the Gold Coast. Dr R H Kennan Senior Sanitary Officer, Sierra Leone has retired on pension Death Dr G Beatty, Medical Officer, Nigeria

The following officers whose services have been placed at the disposal of the Army Council have been given temporary commissions in the R.A.M C F H Storey H W Gush, K B Allan, M Graves G G P Beckett A S Burgess J L Baëza (Gold Coast) F C V Thompson (Gambia) J C M Bailey, R F Williams, W H Peacock, G F Forde J Lindsay A J M Crichton B J Courtney, W C E Bower, F M P Rice, J W B Hanington, C J B Pasley (Nigeria)

The following officers have been permitted to rejoin the Army for military duty Major W H Best, R A M C (S.R) Captain F E Bissell R.A.M C (Reserve of Officers), Major E L Anderson R.A.M C (T F), and Surgeon Captain J M Benson R.E (T.F) all from Nigeria

The following officers are on military duty in East Africa J C Watt (Gambia) J S Pearson, G P D Amico J A. Beamish, A. J R O Brien (Gold Coast) W A. Trumper, L Doudney C Kelsall, C J H Pearson, W H Kauntze, and A R Paterson (Nigeria)

The following officers have been temporarily lent to other Colonial administrations F E Whitehead (Sierra Leone) and J T Watt (Nigeria) to Somaliland F B Thompson (Nigeria) to Cyprus and B A Percival (Nigeria) to Gibraltar

Other Colonial Services—Dr I. G Cummings to be Medical Officer Nigeria Mr E J Wright to be Medical Officer, Sierra Leone Dr A J Borg to be Medical Officer, Fiji

VITAL STATISTICS

HEALTH OF ENGLISH TOWNS

IN the 95 English and Welsh towns with populations exceeding 50,000 persons at the last Census, 7624 births and 3478 deaths were registered during the week ended Saturday August 19th *The annual rate of mortality in these towns* which had been 10 5 10 8 and 10·6 per 1000 in the three preceding weeks, fell in the week under notice to 10·5 per 1000 of their aggregate civil population estimated at 17,312,295 persons for the year 1915 During the first seven weeks of the current quarter the mean annual death rate in these towns averaged 10·8 against a corresponding rate of 10·7 *per 1000 in London*. Among the several towns the death rate in the week under notice ranged from 3 7 in Wimbledon, 4 6 in Edmonton 5 1 in Dudley 5 2 in Great Yarmouth and 5 5 in Merthyr Tydfil to 16 2 in Bury and Rotherham, 16 6 in Liverpool, 17·6 in Barnsley and 20·4 in Bootle

The 3478 deaths from all causes were 28 fewer than the number in the previous week, and included 349 which were referred to the principal epidemic diseases, against numbers increasing from 221 to 266 in the three preceding weeks Of these 349 deaths, 201 resulted from infantile diarrhœal diseases 55 from measles 45 from diphtheria 30 from whooping-cough, 12 from enteric fever and 6 from scarlet fever, but not one from small pox. The annual death rate from these diseases was equal to 1 1, against 0·8 per 1000 in the previous week. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had increased from 46 to 127 in the four preceding weeks, further rose to 201 and included 42 in London, 29 in Liverpool 11 in Birmingham 9 each West Ham, Manchester and Leeds and 7 in Bootle The deaths referred to measles, which had been 64 55 and 54 in the three preceding weeks, were 55 15 deaths were registered in London, 7 in West Ham, 6 in Liverpool, and 4 each in Wolverhampton and Sheffield The deaths attributed to diphtheria which had been 35 40 and 38 in the three preceding weeks, rose to 45 of which 14 occurred in London and 2 each in Walthamstow, Stoke-on Trent, Coventry Liverpool Sheffield and Newport (Mon) The fatal cases of whooping-cough, which had been 36 25 and 34 in the three preceding weeks fell to 30 and included 5 each in London Birmingham and Liverpool The deaths from enteric fever which had been 5 14 and 4 in the three preceding weeks rose to 12, of which 2 were registered in London and 2 in West Ham The fatal cases of scarlet fever, which had been 9 14, 9 in the three preceding weeks, further fell to 6 and included 2 in Rhondda

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and in the London Fever Hospital which had been 1221 1175, and 1107 at the end of the three preceding weeks, further declined to 1045 on

August 19th, 98 new cases were admitted during the week, against 171, 121, and 136 in the three preceding weeks These hospitals also contained on the date mentioned 1238 cases of diphtheria, 173 of measles, 139 of whooping-cough and 38 of enteric fever, but not one of small pox The 846 deaths from all causes in London were 32 fewer than in the previous week, and corresponded to an annual rate of 10 2 per 1000 The deaths referred to diseases of the respiratory system, which had been 90, 99, and 88 in the three preceding weeks, further fell to 78 in the week under notice

Of the 3478 deaths from all causes in the 96 towns, 148 resulted from violence, 284 were the subject of coroners' inquests, and 1120 occurred in public institutions The causes of 43, or 1 2 per cent, of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest All the causes of death were duly certified in Manchester, Leeds, Bristol, West Ham, Bradford, Newcastle-on Tyne, and in 73 other smaller towns Of the 43 uncertified causes, 13 were registered in Liverpool, 7 in Birmingham, 3 in London, and 2 each in Bootle, St Helens Blackpool, Sheffield, Hull, and Gateshead.

In the 96 English and Welsh towns with populations exceeding 50,000 persons at the last Census, 7470 births and 3615 deaths were registered during the week ended Saturday, August 26th The annual rate of mortality in these towns, which had been 10 8, 10 6, and 10 5 per 1000 in the three preceding weeks, rose in the week under notice to 10 9 per 1000 of their aggregate civil population estimated at 17,312,295 persons for the year 1915 During the first eight weeks of the current quarter the mean annual death rate in these towns averaged 10 8, against 10 7 per 1000 in London Among the several towns the death rate last week ranged from 3 2 in Ilford, 4 3 in Oxford, 6 1 in Edmonton, 6 2 in Tottenham and in Willesden, and 6 3 in Hornsey, to 15 0 in Southend-on Sea and in Exeter 15 1 in Gateshead 16 7 in Carlisle, 17·0 in St Helens, and 17 3 in Bath

The 3615 deaths from all causes were 137 in excess of the number in the previous week, and included 376 which were referred to the principal epidemic diseases, against numbers increasing from 212 to 349 in the five preceding weeks Of these 376 deaths, 266 resulted from infantile diarrhœal diseases, 44 from measles, 28 from whooping-cough, 21 from diphtheria, 12 from scarlet fever, and 5 from enteric fever, but not one from small pox The annual death rate from these diseases was equal to 1 1 per 1000, and coincided with that recorded in the previous week The deaths of infants (under 2 years) from diarrhœa and enteritis, which had increased from 46 to 201 in the five preceding weeks, further rose to 266, and included 60 in London, 25 in Liverpool, 17 in Birmingham, 13 in West Ham, 12 in Leeds, and 10 in Manchester The deaths attributed to measles, which had been 53, 54, and 55 in the three preceding weeks, fell to 44, of which 15 belonged to London, 6 to Sheffield and 4 each to West Ham and South Shields The fatal cases of whooping cough, which had been 25, 34, and 30 in the three preceding weeks, fell to 28, and included 4 in London and 3 in Salford The deaths attributed to diphtheria, which had been 40, 38, and 45 in the three preceding weeks, fell to 21, and included 2 each in London, Stoke-on Trent, Coventry, Nottingham, and Manchester The deaths referred to scarlet fever, which had been 14, 9 and 6 in the three preceding weeks, rose to 12, but showed no excess in any town The fatal cases of enteric fever, which had been 14, 4, and 12 in the three preceding weeks, fell to 5, of which 2 occurred in London

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had declined from 1221 to 1045 in the four preceding weeks, further fell to 1005 on Saturday last, 111 new cases were admitted during the week, against 121, 136 and 98 in the three preceding weeks These hospitals also contained on Saturday last 1245 cases of diphtheria, 173 of measles, 131 of whooping-cough, and 38 of enteric fever, but not one of small pox The 853 deaths from all causes in London were 7 in excess of the number in the previous week and corresponded to an annual rate of 10 3 per 1000 The deaths referred to diseases of the respiratory system, which had been 99, 88, and 78 in the three preceding weeks fell to 75 in the week under notice

Of the 3615 deaths from all causes in the 96 towns, 141 resulted from violence, 309 were the subject of coroners' inquests, and 1105 occurred in public institutions The causes of 30, or 0 8 per cent, of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest All the causes of death were duly certified in Manchester, Sheffield Leeds, Bristol, West Ham, Hull, and in 74 other smaller towns Of the 30 uncertified causes, 8 were registered in Birmingham 6 in Liverpool, and 2 each in Stoke-on Trent and Gateshead

HEALTH OF SCOTCH TOWNS

In the 16 largest Scotch towns with an aggregate population estimated at 2,372,000 persons at the middle of this year, 1014 births and 534 deaths were registered during the week ended Saturday, August 19th The annual rate of mortality in these towns, which had been 12 5, 11 2, and 12 2 per 1000 in the three preceding weeks, fell to 11 7 per 1000 in the week under notice During the first seven weeks of the current quarter the mean annual death rate in these towns averaged 12·0, or 1 2 per 1000 in excess of that recorded in the large English towns Among the several towns the death rate in the week under notice ranged from 7·0 in Kilmarnock, 7 4 in Motherwell, and 8 9 in Leith, to 14 3 in Perth, 14 7 in Hamilton, and 14 9 in Clydebank

The 534 deaths from all causes were 20 fewer than the number in the previous week, and included 48 which were referred to the principal epidemic diseases, against 36 and 46 in the two preceding weeks Of these 48 deaths, 29 resulted from infantile diarrhœal diseases, 7 from whooping cough, 4 each from measles and scarlet fever, 3 from diphtheria, and 1 from enteric fever, but not one from small pox The annual death rate from these diseases was equal to 1 1 per 1000, and coincided with that recorded in the large English towns The deaths of infants (under 2 years) from diarrhœa and enteritis, which had increased from 7 to 19 in the four preceding weeks, further rose to 29, of which 20 were recorded in Glasgow, 3 in Clydebank, and 2 each in Edinburgh and Aberdeen The deaths attributed to whooping-cough, which had been 4, 3, and 11 in the three preceding weeks, fell to 7, and comprised 3 in Glasgow and 2 each in Aberdeen and Paisley The fatal cases of measles which had been 7, 8, and 8 in the three preceding weeks, fell to 4, but showed no excess in any particular town The 4 deaths from scarlet fever, of which 2 were registered in Glasgow, were slightly below the average in the earlier weeks of the quarter The deaths attributed to diphtheria which had had been 6, 4, and 5 in the three preceding weeks, fell to 3 and comprised 2 in Glasgow and 1 in Edinburgh The fatal case of enteric fever was registered in Dundee

The deaths referred to diseases of the respiratory system, which had been 40, 58, and 61 in the three preceding weeks, were again 61 in the week under notice, and were 3 above the number registered in the corresponding week of last year The deaths from violence numbered 27, against 33 and 27 in the two preceding weeks

HEALTH OF IRISH TOWNS

In the registration area of Dublin 162 births and 125 deaths were registered during the week ended Saturday, August 19th The annual rate of mortality, which had been 14 4, 14 1, and 16 5 per 1000 in the three preceding weeks, fell to 16 4 in the week under notice, against 10 2 and 12 3 per 1000 in London and Glasgow respectively

Of the 125 deaths at all ages, 27 related to infants under 1 year, and 22 to persons aged 65 years and upwards Eleven deaths (of infants under 2 years) were referred to diarrhœal diseases, and 1 death each to measles, whooping-cough and diphtheria The causes of 6 deaths were uncertified, while 4 others were the subject of a coroners' inquest, and 54, or 43 per cent, of the total deaths occurred in public institutions

During the same period 164 births and 100 deaths were registered in the city of Belfast The deaths corresponded to an annual rate of 13 4, or 1 8 per 1000 in excess of that recorded in the previous week, and included 17 of infants under 1 year, and 22 of persons aged 65 years and upwards Six deaths (of infants under 2 years) were referred to diarrhœal diseases, 3 to measles, and 1 each to scarlet fever, whooping cough, and diphtheria The causes of 2 deaths were uncertified, and 3 others were the subject of a coroner's inquest, while 29 deaths occurred in public institutions

In the registration district of Dublin 244 births and 110 deaths were registered during the week ended Saturday, August 26th The annual rate of mortality, which had been 14 1, 16 5, and 16 4 per 1000 in the three preceding weeks, fell to 14 4 in the week under notice, against 10 3 and 13·0 per 1000 in London and Glasgow respectively

The 110 deaths at all ages were 15 less than in the previous week, and included 23 of infants under 1 year and 17 of persons aged 65 years and upwards Seventeen deaths (of infants under 2 years) were referred to diarrhœal diseases 3 to scarlet fever, 2 to measles, and 1 each to whooping cough and diphtheria The causes of 3 deaths were uncertified, while 2 others were the subject of coroners' inquests and 38, or 35 per cent, of the total deaths occurred in public institutions

During the same period 153 births and 123 deaths were registered in the city of Belfast The deaths were equal to an annual death rate of 16 4, or 3·0 per 1000 higher than in the previous week, and included 22 of infants under 1 year and 17 of persons aged 65 years and upwards Eight deaths (of infants under 2 years) were referred to diarrhœal diseases 5 to whooping cough, and 2 to measles The causes of 2 deaths were uncertified and 4 others were the subject of coroners' inquests, while 30 deaths occurred in public institutions

Correspondence.

'Audi alteram partem.

THE TREATMENT OF INFECTED SUPPURATING WAR WOUNDS

To the Editor of THE LANCET

SIR,—A few weeks before the publication of Professor Rutherford Morison s interesting paper on this subject, published in your issue of August 12th, the author was kind enough to send us his formula and to suggest that the staff of this hospital might find the method of treatment useful and conservative Acting on his advice, and encouraged by the results which we obtained, we have employed it in an increasing number of cases. Our experience extends over a period of eight weeks, and includes approximately 200 cases, our results have been similar to those obtained in the Northumberland War Hospital The kind of wounds in which the bismuth iodoform paraffin paste has been used by us includes compound fractures of the humerus and femur, severe gunshot wounds of the foot and hand, gangrenous and septic wounds of the muscular tissues, abscesses, one cerebral hernia, and gunshot wounds of knee, hip, and shoulder joints In every case fœtor has disappeared, sepsis has subsided, and union of bone has taken place with astonishing rapidity while the condition of the patient has benefited greatly from being spared painful daily dressings

In support of our observation I beg to quote a few cases —

1 Corporal ——, aged 39 1/7/16 Wounded 7/7/16 Admitted with gunshot wound right hand, two septic irregular wounds which had been enlarged in France, a tube being passed from one to the other, fracture of the styloid process of ulna, pisiform, unciform os magnum and base of fifth metacarpal bones His hand was dressed with "Bipp" on 9/7/16, dressings renewed weekly 8/8/16 Healed Callus has formed, he has some movement in the wrist, and his grasp is good and still improving

2. Private —— 1/7/16 Wounded 6/7/16 Admitted with comminuted compound fracture of the ulna and laceration of the tissues of the forearm 14/7/16 Operation, bullet removed, damaged tissue excised methylated spirit and 'Bipp" applied Dressed at intervals of four to eight days 12/8/16 Fracture united and wound superficial 23/8/16 Movements forearm restored

3 Private —— 1/7/16 Wounded 6/7/16 Admitted with compound, comminuted and very septic fracture of foot Three metatarsals were splintered and the tarsus involved The foot was so septic and painful and the general condition of the man was so bad that amputation seemed inevitable 8/7/16 Operation, excision of damaged tissues and cleansing with gauze soaked in methylated spirit and tincture of iodine followed by packing with Bipp" Dressed at intervals of four to eight days 20/8/16 Wound healed except for an abrasion on the dorsum Movements restored

4 Corporal —— 27/7/16 Wounded 2/8/16 Admitted with compound fracture of centre of shaft of humerus communicating with huge flesh wounds involving the outer inner, and under surfaces of the arm 3/8/16 Operation sloughs and loose bone removed, cleaned, and "Bipp" applied Dressed at intervals of three to five days 24/8/16 Fracture uniting Wounds rapidly healing and quite clean (Three weeks)

5 Private —— 1/7/16 Wounded 6/7/16 Admitted with compound fracture of femur with 1 inch shortening and septic wounds of the outer and inner surfaces of the thigh communicating with the bone 12/7/16 Operation cleaning with tincture of iodine, rectified spirit, and 'Bipp" Wounds closed by interrupted silk worm sutures Interrupted long Liston splint, and 15lb weight of extension applied 15/7/16 Stitches removed, 'Bipp" applied superficially Spirit gauze to wound at intervals of four to eight days 20/8/16 Fracture uniting No shortening Wound practically healed

6 Lance Corporal —— 27/7/16 Showed signs of calculus pyelitis 5/8/16 Operation evacuation of pus round kidney and nephrectomy Cavity dried 'Bipp" and light gauze packing inserted Dressed daily for first week, the cavity being wiped out with gauze and small quantities of "Bipp" inserted Since then dressed on alternate days Wound almost superficial, no sepsis since operation

In only one case have ill effects been observed The patient was admitted after an amputation through the thigh with a protruding bone and sloughing stump and in a very toxic condition The stump cleaned up under treatment with Bipp" and the temperature subsided The intermuscular tracts were packed with gauze soaked in "Bipp" The temperature rose, the man suffered from delirium and wasting and excreted large quantities of potassium iodide When the treatment was changed his temperature became normal and he is making a good recovery

We are greatly indebted to Professor Rutherford Morison for this remedy It saves the patients a great deal of pain and exhaustion and the results are incomparably better than any which we have obtained by other methods

I am, Sir, yours faithfully,

LOUISA GARRETT ANDERSON B S M D Lond,
Chief Surgeon Military Hospital Endell street W C

August 28th, 1916

IMMOBILITY AFTER JOINT INJURY

To the Editor of THE LANCET

SIR,—If some of your readers doubted as to the necessity for my insisting on the importance of avoiding prolonged immobilisation after joint injuries, Mr P B Roth's letter in your issue of August 12th should convince them He enunciates apparently in perfect good faith the very principles which produce the deplorable results my paper was written to prevent. During the presence of any acute inflammation no sane person would recommend moving an injured joint, the value of rest in such cases having been recognised since and probably before the days of Hippocrates Where we differ is, that he treats an injury to a joint by immobilising it sometimes "for months," and apparently by no other method than that of having it "daily stroked," his cases are 'not to be hurried," and he "*encourages*" the patient "to take his time over it" My view is that as soon as the acute painful stage has passed and inflammation has subsided the surgeon should prevent subsequent stiffness by commencing movements at an early stage Many of the cases I see for two large London corporations, for accident insurance companies and for the military authorities show the lamentable results of postponing the commencement of these movements I have, for instance, seen a simple subglenoid dislocation of the shoulder, which had been subjected to this expectant treatment, end in a permanently stiff shoulder joint, and within the last few weeks I have had referred to me at least five somewhat similar cases It is true that in many instances the patient brings the trouble upon himself from sheer cowardice, but I fear that there is no doubt that, as I stated in my communication the vast majority of these cases are the result of mismanagement All the encouragement possible is required in exactly the opposite direction to that suggested by your correspondent—viz, towards helping men to return to work at the earliest possible moment

That adhesions do form as the result of immobilisation is surely too well known to be insisted on, and Mr Roth knows it, for although under heading 4 of his letter in his first sentence, he states 'keeping the joint immobilised in this manner does not cause adhesions or stiffness," yet in the second he admits that in certain cases 'there is a likelihood of stiffness following injury to a joint, especially in the joints above and below it" and in the third agrees that the proper way to prevent such stiffness in the proximal and distal joints is to put these through their full range of movement It is all a little difficult to follow, for he states first that to keep a joint at rest does not stiffen it then he admits that it is likely to do so and lastly he recommends movement to prevent it! Indeed, if it had not been for the fact that truth emerges more readily from error than from confusion," I should have felt rather hopeful of Mr Roth A patient with a reduced dislocation of the elbow joint treated by Mr Roth s method would have my sympathy—and a permanently stiff joint, for "he is not to to be hurried," and is even to be encouraged" to "take his time over it" That the verdict of those who have had wide experience is on the side of the views I have expressed anyone can ascertain by a reference to the works of Sir William Bennett, Whitelocke Spencer, and almost every recent surgical writer on the subject For instance, Whitelocke points out that for some reason, not altogether independent of text-book teaching it has been the habit to regard so-called rest as a primary and all pervading essential in the treatment or management of any injury of a joint He expresses his astonishment that a joint designed and constructed by nature for *movement* should, when it suffers violence, be treated in

exactly the same way as a fractured bone, which is planned for the very opposite The Grand Palais, Paris, lays itself out amongst other things, for the special treatment of joints stiff as the result of bad treatment and it is estimated that in six months it has saved £644,000 in pensions and gratuities, and similar institutions are rapidly springing up in this country, on the staff of one of which I hold an honorary position

My object in bringing the matter before your readers was to induce those who were still practising timorously on the old lines to view their cases in the proper perspective, and I am still hopeful that the number of medical men who unwittingly, but none the less culpably, "manufacture" those cases for us may yet be gradually diminished

I am, Sir, yours faithfully,
JOHN COLLIE, M D , C M

Porchester-terrace W August 24th 1916

A SERIOUS FLAW IN THE RETAIL DISTRIBUTION OF MILK

To the Editor of THE LANCET

SIR,—Twice recently within a fortnight milk purporting to be "nursery milk" was left at my house in a dirty bottle This was obvious from the fact that when the milk was poured out the bottom of the bottle was found to be crusted inside with dirty, dried milk. I may mention that the milk was furnished by one of the large London dairy companies On a complaint being made to the manager of the local branch the girl who brought the milk round confessed that she had given someone else the nursery milk intended for us and had filled a *dirty bottle collected from another house* with milk from the churn and left it with us as nursery milk When an allowance is made for the dislocation of labour consequent upon the war, it is disquieting to think that our infants are liable to be exposed to such grave risks as are incurred by the procedure above mentioned It makes one shudder to think of the myriads of bacteria there may be in the bottom of a dirty, unwashed milk bottle which has stood in somebody's area or back garden, possibly for twelve or more hours, and as often as not in close proximity to a dust-bin or water closet, and then to think of a pint of milk being put into such a bottle and left at one's house as food for an infant! If such a condition of things obtains in a good residential district where the price of nursery milk is 6*d* or even 7*d* a quart, it is no wonder that our children's hospitals are flooded with cases of gastro-enteritis from the poorer quarters, especially at this season of the year Doubtless every week hundreds of infants are stricken down many of them never to rise again, by the criminal practice of putting their milk into dirty bottles This, too, when it is of the utmost importance to the future welfare of the nation that as many infant lives as possible, and especially the lives of male infants, should be preserved to make up for the terrible wastage due to the war

When I interviewed the secretary of the company with reference to my complaint, he admitted that it was a serious matter, but that he could not easily prevent it, although instructions were given to men and girls who distributed the milk that they were on no account to fill dirty bottles with milk from the churns He asked me what I could suggest to prevent it In the first place, I would suggest that all persons concerned in the distribution of milk should receive elementary instruction in the potentialities for evil inherent in dirty milk especially to infants and young children Secondly, the filling of dirty bottles or cans collected from houses should be absolutely forbidden, and it should be impossible for anyone but an authorised person to have access to the cardboard discs with which the bottles are closed Thirdly, bottles or cans with "nursery milk" should be filled only at the dairy and sealed with some sort of label to which again only an authorised servant of the company should have access Fourthly, I would suggest that it should be made a punishable offence for anyone to put milk and especially milk intended for the food of infants into a dirty bottle, and that notices to that effect should be prominently displayed in every dairy

Another point in this connexion which is of importance The company in question so the secretary informed me, was pasteurising *all* the milk (general and nursery milk) it was supplying to customers yet this milk was described as "fresh cow s milk" Customers should be informed when milk is pasteurised, otherwise there is the possibility that it will be boiled again (milk is always boiled in my own household), with the result that infants fed on twice sterilised milk run the risk of developing scurvy

The importance of this subject and the need for an urgent solution are my excuse for writing to you at such length

I am, Sir, yours faithfully
DAVID NABARRO

Harley street, W

THE EFFECT OF FRESH HUMAN BLOOD SERUM ON ARTIFICIAL MEDIA

To the Editor of THE LANCET

SIR,—In their paper on this subject published in THE LANCET of August 19th, Lieutenant-Colonel L S Dudgeon, Mr F Bawtree, and Dr D Corbett throughout use the term "fresh human serum." They do not, however, give any evidence that there is any special advantage in the serum being freshly drawn We have, in common with many others, used unheated human serum as an addition to artificial media for a considerable number of years, but our experience has been that the growth of the various pathogenic bacteria is better if the serum used is not quite fresh but has been drawn for a period of a week or so before use After this time it may be used for many months without appearing to lose its value for enriching media. As evidence of this we may mention that ten years ago when one of us (G T W) was doing a considerable number of opsonic indices with the gonococcus, unheated serum, hydrocele or ovarian agar was used, and it was found to be possible to plant a culture at 10 A M and use it the afternoon of the same day The serum used here was used from seven days to nine months after it had been collected Serous exudates, such as ascitic fluid or pleural fluid, which are liable to contain numerous cells, are not in our experience as valuable as serum or clear hydrocele or ovarian fluid The cells or cell extracts possibly produce an inhibitory effect on pathogenic bacteria

We think, therefore, that the important factor is the avoidance of heating and not the freshness of the serum. This, however, is a point which, it appears to us, has for years been well recognised by most bacteriologists and has repeatedly been emphasised on numerous occasions Bumm in 1885, and again Wertheim in 1890, described in detail the method of making up unheated human serum agar in slopes and plates, and showed its value as a medium for the growth of some more delicate bacteria, since then the use of unheated human serum for growing gonococci has been almost a commonplace in bacteriology, it has also been used to enhance the virulence of various bacteria Recently the epidemics of cerebro-spinal meningitis have again brought the use of unheated human and animal serum into great prominence and provoked considerable discussion at various pathological meetings

It would appear to us that the reason why some laboratories have failed hitherto fully to appreciate the value of unheated serum is due to the introduction of "nasgar" a medium which in our opinion, is a very inferior substitute and one which gained popularity by the fact that it saved the necessity of obtaining serum or exudates with strict aseptic precautions, and so was more convenient for those who were not in direct touch with a hospital or students

We are, Sir, yours faithfully,
G T WESTERN,
LUDWIK RAJCHMAN

Bacteriological Laboratory London Hospital August 23rd 1916

THE PSYCHO-PATHOLOGY OF WAR NEUROSES

To the Editor of THE LANCET

SIR,—With regard to Dr G Burton Brown's letter in your issue of Aug 19th if he would kindly refer to my article he will see that it is in Case 7 s dream that he says "I rang down full speed ahead ' Dr Burton Brown would, of course, not expect verbal accuracy in a dream even about technical matters There was a reason for the patient s use of the word "speed" in his dream, but the explanation would take me beyond the limits of a letter What Dr Burton Brown thinks I think sailors say has really little to do with what a patient, who was not a sailor, dreams he is saying

I am, Sir, yours faithfully
M D EDER.

One of H M Hospital Ships
August 22nd 1916

THE EFFECT OF FERRIVINE AND INTRAMINE ON SYPHILIS

To the Editor of THE LANCET

SIR,—Professor W M Bayliss in his letter in THE LANCET of July 29th states that osmic acid was not used to test the reducing properties of the lipoid globulin particles Both osmic acid and Sudan III were used and the results reported in the paper by Mackenzie Wallis and myself to which Professor Bayliss refers Since that paper was written I have repeated several of my former experiments and have succeeded in demonstrating that the above-mentioned particles contain oxidising and reducing enzymes Under the ultra-microscope sera and colloidal suspensions present many similarities, therefore to compare the adsorptive capacity of a rigid body like charcoal with one of the former seems to me to be quite beside the point For staining *in vivo*, although alcoholic solutions of dyes may be used, I expressly stated that the best, and therefore the dye most to be recommended, was borax methylene blue Professor Bayliss does not seem to realise that in the dried films only the dye is dried and the cells in the examined secretion remain alive for several hours In using the word permeability to which Professor Bayliss takes exception I was regarding the power of the molecule to penetrate the membrane The penetration of the membrane not only decides the permeability of the cell, but it is regulated both by the amino groups and by the carboxyl groups Later in the letter reference is made to the fact that the presence of amino-groups favours permeability, hence Professor Bayliss here uses the term in the same sense as I did

In regard to the question of adsorption, I am pleased to see that Professor Bayliss accepts my explanation with regard to the effect of increased size of particles because as I have stated the size and number of the colloidal particles in different sera formed the foundation upon which the whole of my work was based The importance of the ultra microscopic examination of sera cannot be overestimated since the difference between syphilitic and non syphilitic sera is so striking that no Wassermann nor any other reaction is necessary to differentiate between them. Perhaps it may interest Professor Baylis to know that medical men in Canada, the United States and Japan have been responsible for the preparation of substitutes for salvarsan, I cannot understand why medical men in England should be less able than those referred to In my book I was careful to draw attention to the secret methods of preparing "606" and I cannot see how Professor Bayliss can make out that I have some secret method in preparing intramine and ferrivine All these chemotherapeutic compounds are colloids, therefore although several samples may be chemically the same their physical action may be quite different. The National Medical Research Committee stated that neokharsivan was chemically the same as neosalvarsan, but nevertheless the supply of the former has been stopped owing to the severe toxic symptoms which followed its use

I am surprised to see in Professor Bayliss's remarks about intramine that he fails to acknowledge the help of one drug's action upon that of another In my book I reported cases which immediately improved under intramine, although they had been uninfluenced by salvarsan and mercury According to Professor Bayliss's reasoning "the natural conclusion to be drawn is surely that salvarsan and mercury are useless while intramine is a valuable remedy For the past nine months I have been experimenting with colloidal iodine and have found that it increases both the action of salvarsan and intramine I have given so many injections of these different remedies that I am perfectly convinced that drugs can be employed which mutually increase the therapeutic effect obtainable by either one alone As to Professor Bayliss's remarks on ferrivine considering the exact formula is given the accusation against me of using mystifying nomenclature falls utterly to the ground It is extraordinary for Professor Bayliss to state that "it is extremely unlikely that such a compound (ferrivine) would have any special action different from an ordinary ferric salt In the first place an ordinary ferric salt is non-colloidal while ferrivine is, and in the second place I should not have advocated ferrivine if ferric hydroxide was as good It is odd that Professor Bayliss failed to note my remarks concerning the therapeutic action of ferric and aluminium hydroxide

I find that Professor Bayliss's only argument against me rests on the fact that I have used certain technical terms in a sense which does not meet with his approval No argument has been brought forward to disprove my theories

I am, Sir, yours faithfully,

Wimpole-street W August 3rd 1916 J E R McDONAGH

Obituary.

THOMAS GREGOR BRODIE, F R S

PROFESSOR OF PHYSIOLOGY IN TORONTO UNIVERSITY

WITH the death of Dr T G Brodie in London on Aug 20th is removed one of the outstanding names associated with physiological teaching in this country. Eight years ago he went to Canada as professor at Toronto University, but the European conflict recalled him, and he became a Major in the Canadian Army Medical Corps attached to No 4 Canadian General Hospital Dr Brodie was educated at King's College School London, and St John's College Cambridge, becoming later a Fellow of King's College, London He was in succession attached to three of the great London schools, becoming demonstrator of physiology at King's College in 1890, at the London Hospital Medical School in 1894 and finally lecturer on physiology at St Thomas's Hospital. The latter position he laid down to direct the research laboratories of the Royal Colleges of Physicians and Surgeons in London He then became professor superintendent of the Brown Animal Institution and subsequently professor at the Royal Veterinary College in London During the greater part of this time he directed physiological studies at the London School of Medicine for Women Shortly before accepting the call to Toronto he was elected a Fellow of the Royal Society and some years later delivered the Croonian lecture on "A New Conception of the Glomerular Activity" In this he clearly showed how the glomerular function presupposes the existence of a firm and inextensible capsule surrounding the kidney and explained the dependence of the rate of urinary flow on the general blood pressure To students Brodie made himself welcome by adding his "Essentials of Experimental Physiology" to the parallel works on chemical physiology and histology The book followed the course of advanced practical physiology at King's College and was noteworthy for its beautiful tracings and curves and other evidence of the author's original work It has remained for long a students' guide to experimental work in physiology

THE LATE DR J W ELLIS—Mr John William Ellis M B Ch B Vict and Liverp, who died last week, had been Lieutenant Colonel, R A.M C (T.F), attached to the 9th Battalion, Liverpool Regiment He was locally well known as a naturalist having contributed studies on the coleoptera and lepidoptera of the district and was at the time of his death one of the honorary secretaries of the Liverpool Naturalists' Field Club

DEATH OF DR C S TICEHURST—The death occurred recently at Playden, Sussex of Dr Charles Sage Ticehurst who for many years was medical officer of health for the Petersfield rural district in Hampshire where he held a number of other appointments Studying at Guy's, he took the L R C P diploma in 1872 and became M.R C S and L S A in the same year, and M.R C.P Edinburgh five years later In his early days he wrote a good deal, and among his contributions to the medical press was an article on Tattooing or Tinting Opacities of the Cornea and Sclerotic" which appeared in THE LANCET in 1872 An active and enthusiastic member of the original Volunteer Force, he rose to the rank of Surgeon Major of the 3rd Volunteer Battalion (Duke of Connaught's Own) Hampshire Regiment, and was the recipient of the Volunteer Decoration

THE Association of British Chemical Manufacturers the business of which is being carried on temporarily at the offices of the Society of Chemical Industry, Broadway Chambers Westminster S W have appointed as general secretary Sir Charles H Bedford M D, D Sc. Edin. Lieutenant Colonel I M S (retired) who was formerly professor of chemistry in the Calcutta Medical College and technical adviser to the Government of India

The War.

THE CASUALTY LIST

THE following names of medical officers appear among the casualties announced since our last issue —

Killed

Captain G R Hitchin, R A M C, was educated at Owens College, Manchester, and qualified in 1903 When war broke out he was in practice at Bury, Lancs

Captain A J Waugh, R A M C, attached to the North Staffs Regiment, was educated at Cambridge and at St Bartholomew's Hospital, London, and qualified in 1912 He joined the R A.M C soon after the outbreak of the war, and was gazetted Captain in August last year

Died

Lieutenant W W. Farrar, R.A M C, was educated at Glasgow and at St Andrews Universities, and qualified in 1901 At the time of joining the R A.M C in October last he was medical officer of health for Misterton, Gainsborough, and also held other appointments in the district

Captain H H Tanner, R A.M C, was a student at St Mary's Hospital, London, and qualified in 1910 He was in practice at Westbourne Grove before joining up in June, 1915

Captain M C Hayward, R A.M C was educated at Guy's Hospital and at Cambridge University, and qualified in 1903 Before joining the R A M C in June last year, he was in practice at Abingdon, Berks, and had previously held appointments at Paddington Green Children's Hospital, the North West London Hospital, and at the Victoria Barracks Windsor

Lieutenant G S Graham, R A.M C, attached to the Royal Field Artillery, qualified M B, Ch B Liverp in 1915

Wounded

Captain R D B Frew, R A M C
Captain A F Menzies, R A M C
Staff Surgeon G Nunn, R N
Captain H S Baker, R A.M C
Captain F A Bearn, R A M C
Captain A. Watson, R A.M C
Captain A S Glynn, R A.M C, attached to the Northumberland Fusiliers
Lieutenant P L Watkin Williams, R A.M C, attached to the Royal West Kent Regiment
Lieutenant C P S Allingham, R A M C, attached to the Middlesex Regiment
Captain R McC Hill, D S O, R A.M C attached to the Argyll and Sutherland Highlanders
Lieutenant T J Lloyd, R A M C, attached to the Bedfordshire Regiment
Captain S McM McLay, R A.M C, attached to the Leinster Regiment
Captain N McN Rankin, R A M C, attached to the Buffs
Captain H K Ward, R A M C, attached to the King's Royal Rifle Corps
Lieutenant H C Allott, R A M C, attached to the Cameronians
Captain D A Donald, R A.M C
Lieutenant J R Elwood, R A.M C
Captain A. A Cooper, R A.M C

Previously reported Believed taken Prisoners at Kut-el Amara, now reported Prisoners

Captain D Arthur, I M S
Major C H Barber, I M S
Colonel P Hehir, C B, I.M S
Captain H H King, I M.S
Captain J Startin, R A M C, attached to the Oxford and Bucks Light Infantry

THE HONOURS LIST

The King has conferred the honours mentioned upon the following medical officers in recognition of their gallantry and devotion to duty in the field —

Distinguished Service Order

Temporary Lieutenant Hugh Llewellyn Glyn Hughes, R A.M C

For conspicuous gallantry and devotion to duty during operations He went out in broad daylight, under heavy fire, and bandaged seven wounded men in the open lying out in an exposed spot for one and a half hours At nightfall he led a party through a heavy barrage and brought the seven men back

Temporary Captain Douglas William Hunter, R.A M C

For conspicuous gallantry in action He tended the wounded incessantly in the open and in the front-line trench under very heavy fire.

Temporary Captain Henry Harold Robinson, R A.M C

For conspicuous gallantry and devotion to duty After a raid in the enemy's trenches he twice crawled out in broad daylight to assist wounded men under fire They were brought in at night.

Military Cross

Temporary Captain Archibald Stirling Kennedy Anderson, R A.M C

For conspicuous gallantry and devotion to duty in action He was untiring in attending to the wounded though on more than one occasion his aid post was struck by shells He went out under heavy shell fire to the assistance of the wounded

Captain William Barclay, R A.M.C (S R)

For conspicuous gallantry and devotion to duty when in charge of a bearer division during operations He worked often in the open under heavy shell fire and set a fine example to all under him

Temporary Lieutenant James Roberts Boyd, R A M C

For conspicuous gallantry and devotion to duty when rescuing under heavy fire some men who had been buried in their dug-out He assisted in the digging out although temporarily disabled by earth thrown up by bursting shell and finally brought in one man alive

Temporary Captain Michael Charles Burke, R A M C

For conspicuous gallantry and devotion to duty in action He worked incessantly with practically no rest for seven days under shell and machine-gun fire He greatly encouraged all those round him by his cheeriness and disregard of danger

Temporary Lieutenant Charles Bromley Davies, R A M C

For conspicuous gallantry and devotion to duty in action When commanding stretcher-bearers although wounded himself he continued his gallant work with practically no rest for six days

Temporary Captain James Churchill Dunn, R A M C

For conspicuous gallantry and devotion to duty in action He showed an utter disregard of personal danger and his bravery when tending the wounded was the admiration of all ranks

Temporary Captain Ernest Harrison Griffin, R A M C

For conspicuous gallantry and devotion to duty Without food or sleep he worked incessantly tending the wounded of his own and other units under heavy fire. He showed an absolute disregard of danger On other occasions he has done similar gallant work.

Captain Henry Alphonsus Harbison, R A M C, S.R

For conspicuous gallantry and devotion to duty in action When in charge of stretcher bearers he dug out a man under heavy fire and brought him safely back He also repeatedly took out parties under heavy fire and evacuated a wood of all wounded

Captain William Johnson R A M C S R

For conspicuous gallantry and devotion to duty He led the bearer division of his unit for seven consecutive days during heavy fighting He was repeatedly under heavy fire when rescuing the wounded He has always set a fine example of courage

Temporary Captain James Reginald Kemp, R A M C

For conspicuous gallantry and devotion to duty in action For several days he was indefatigable in bringing in and tending the wounded and undoubtedly saved many lives

Captain George Herbert Hind Manfield, R A.M C

For conspicuous gallantry and devotion to duty in action He worked day and night tending the wounded in our advanced positions under heavy fire and carried many of them down the trench after all his bearers had been wounded

Temporary Captain Valentine Cleeve Martyn, R A M C

For conspicuous gallantry and devotion to duty when tending the wounded under fire On several occasions he has gone out under circumstances of the greatest danger but has never hesitated to take any risk in order to reach a wounded man

Temporary Captain John Boyd Orr, R A.M C

For conspicuous gallantry and devotion to duty in action On several occasions he displayed the greatest courage when searching for and tending the wounded.

Temporary Captain David Pottinger, R A M C

For conspicuous gallantry and devotion to duty in action When in charge of stretcher bearers he showed an utter disregard of danger and, though himself wounded in the face continued his gallant work during the remainder of the day

Temporary Captain Clive Watney Roe, R A M C

For conspicuous gallantry and devotion to duty during three days of hard fighting He was indefatigable in tending the wounded and displayed great coolness under fire

Captain Joseph Wilkie Scott, R.A.M C

For conspicuous gallantry and devotion to duty in action. He tended the wounded under heavy fire for several hours and carried back a number of them to our front line at great personal risk.

Temporary Captain John Henry Tomlinson, R A M C

For conspicuous gallantry and devotion to duty during a heavy bombardment. He tended the wounded in the main street of a village at great personal risk till he was severely wounded by a fragment of a shell

Captain Fergus McIntyre, Australian A M C

For conspicuous gallantry and devotion to duty He tended the wounded under heavy artillery fire during operations. The aid post received a direct hit from an enemy shell

OBITUARY OF THE WAR

OWEN HERBERT PETERS M.D B S MELB, D P H.,

CAPTAIN ROYAL ARMY MEDICAL CORPS

Captain O H Peters who died of wounds in France on August 4th at the age of 38 was the youngest son of the late Walter Peters of Ballarat, Australia. Educated at Grenville College, Ballarat, and at Queen s College Melbourne, he graduated M B at Melbourne University in 1902 He left Australia three years later to continue his studies in England, taking a public health diploma and obtaining an appointment as medical officer at the infectious hospital in Nottingham About this time he took his doctorate at Melbourne. Public health work proving congenial he worked in succession at Mansfield Liverpool, and under the London County Council. He resigned the last appointment in 1914 to enter the Royal Army Medical Corps in which he was promoted captain six months ago He was shot through the head and survived his injury for some days

A fellow student at college writes of Captain Peters as a man of very kindly disposition and a brilliant student although personally very reticent We had occasion several years ago to notice a thoughtful paper entitled Season and Disease based on his experience of epidemic diarrhœa in Mansfield This he expanded later into a book entitled 'Observations upon the Natural History of Epidemic Diarrhœa' (Cambridge University Press 1911) in which he described the disease as one very like an ordinary infectious disease with something superadded—viz. a vicious circle formed by the baneful conditions of slum life There is little doubt that had Captain Peters lived we should have had important public health work from him

CHARLES PATRICK KELLY B A. M B, B CH DUB,

LIEUTENANT ROYAL ARMY MEDICAL CORPS

Lieutenant C P Kelly who was killed in action on July 2nd in his twenty sixth year was the third son of the late T P Kelly of Dublin He was educated at St. George s College Weybridge and entered Dublin University in 1908 taking his B A. in 1913 and his medical degree in April, 1914 He was then in succession senior medical officer to the Southport Infirmary and resident at the Fever Hospital Fazakerley until July 1915 when he obtained a commission in the Royal Army Medical Corps being attached to a field ambulance He met his death while tending a wounded soldier and his commanding officer wrote deploring the loss of a friend and a most efficient officer

Lieutenant Kelly was a keen hockey player and was capped" for Dublin University in 1911 and 1912. He was also a keen cricketer playing for the University He ran the Dublin University Long Vacation cricket side very successfully for three years

JOHN LESLIE GREEN, V C, M R C S ENG,

CAPTAIN ROYAL ARMY MEDICAL CORPS

Captain J L. Green, who was killed in France on July 1st at the age of 27 was the eldest and only surviving son of J G Green J P, of Birchdene, Houghton, Huntingdon He was educated at Felsted, and entered Downing College, Cambridge, with a scholarship He obtained honours in Part I. of the Natural Science Tripos and stroked his college boat for the three years he was up He continued his clinical studies while at St Bartholomew's Hospital taking the Conjoint Board qualification in 1913 When war broke out he at first obtained a combatant commission in the 5th South Staffordshire Regiment in which his brother was serving He was afterwards transferred to a field ambulance in France, and was finally attached as medical officer to the 5th Sherwood Foresters with whom he was serving when he met his death.

He was popular with both officers and men and untiring in his efforts for the health of his battalion His death occurred whilst assisting an officer who was mortally wounded just as he was cutting the last piece of a row of wire Seeing him fall, Captain Green went to him dressed his wounds and carried him back towards his own lines When nearly there the officer was again hit, receiving a bullet in the left arm and Captain Green himself wounded and under continuous fire from the enemy, bore him to a shell hole and started dressing this wound It was while thus engaged that he was shot through the head and killed. He was awarded the posthumous honour of the Victoria Cross

A colleague writes of Captain Green as a man of exceptional strength of character He was a keen all round sportsman a first-rate oar and equally good at golf and tennis Captain Green married last January Edith Mary Nesbitt Moss M.B B S daughter of the late Francis J Moss, of Stainfield Hall. Lincolnshire Mrs Green is herself working at a military hospital in London

JAMES BLAIN HAVERSON M D MANITOBA

LIEUTENANT ROYAL ARMY MEDICAL CORPS

Lieutenant J B Haverson, who was killed in France on June 25th at the age of 25 was the only son of John H Haverson barrister at-law of Carman Manitoba. He graduated from the Medical College at Winnipeg Manitoba in May, 1915 becoming house surgeon in Winnipeg General Hospital an appointment which he resigned in August 1915 to take a commission in the Royal Army Medical Corps He was at first stationed at Eastbourne and was later appointed transport officer to an ambulance corps Lieutenant Haverson met his death while attending the wounded at an advanced dressing station. His commanding officer wrote of him 'His work as transport officer was so good that he was frequently complimented by staff officers In every way he did his duty in a manner that any man would be proud of and finally gave his life with the same quiet courage that marked everything he did'

RAYMOND JOHN JONES, M B CH B VICT,

LIEUTENANT ROYAL ARMY MEDICAL CORPS

Lieutenant R J Jones, who was killed in action on July 10th at the age of 39 was the youngest son of the late R Bellis Jones of Llanrhaiadr, Oswestry He was educated at the Liverpool Institute, the Oswestry High School, and University College, Liverpool, graduating M B, Ch.B at Victoria University in 1901 While at school he was a good athlete, distinguishing himself in the 100 yards sprint and the quarter mile After acting as assistant at Tylorstown, Caerphilly, Barry, and Brymbo, he settled down in practice at Cardiff He took a commission in the Royal Army Medical Corps in 1915, and proceeded to France in December of that year with a field ambulance A fellow officer in the ambulance, writing to his brother, describes how gallantly Lieutenant Jones met his death "Our stretcher bearers came in to our advanced post with the news that numbers of wounded, serious cases, were lying in the wood and could not be brought in for some time As soon as Jones heard this, about 4 30 A M, he filled his pockets with bandages and went out to find them. Over a small ridge and down to the edge of the wood he went across about 40 yards of open in which it seemed impossible for anything to live He never found his goal, he was killed by machine-gun bullets before he reached the wood." His friend adds that Lieutenant Jones was popular with both officers and men and would be greatly missed He was unmarried

JULIUS HENRY BEILBY, M B, C M EDIN,

CAPTAIN ROYAL ARMY MEDICAL CORPS

Captain J H Beilby, whose death in action on April 23rd is now officially presumed, was 47 years of age, and was the second son of the late J H Beilby, of Edinburgh He was born at Colinton, Midlothian, educated at Edinburgh Collegiate School, and then entered Edinburgh University, where he graduated M B, C M in 1889 After a period at the Rotunda Hospital, Dublin, some post-graduate work at Vienna, and a resident appointment at the Royal Edinburgh Hospital for Sick Children he settled in practice at first at Reigate, moving to Bromsgrove in 1897 as a partner of Dr T E Underhill, of Barnt Green For some years his time was fully occupied with professional work, but in 1910 he was elected a member of the urban district council, was bailiff of Bromsgrove in the following year and in 1913 was returned unopposed as the first member for Bromsgrove East on the Worcestershire county council He was a liberal supporter of all local movements for the good of the town and a pioneer worker for the Red Cross and V A.D organisations Captain Beilby was a surgeon captain in the Worcestershire Yeomanry (Queen's Own Worcestershire Hussars) from 1900 to 1907, and in the early days of the war he promptly joined the Service as captain in the Royal Army Medical Corps After a spell of work with his unit at home stations he went with them to the Mediterranean, and was missing after the action at Katia, east of the Suez Canal, on Easter Sunday Captain Beilby is spoken of by his friends as a man of high and noble ideals to which he tried to live up One who worked with him for many years adds "Beilby had a thorough and sound knowledge of his profession and was always anxious to do his best for his patients, regardless of time and trouble His standard of professional etiquette was high, and he was at times more jealous for the reputation of his colleagues than for his own" Captain Beilby leaves a widow and two boys

GEOFFREY RICHARD HEARD, M R C S ENG,

CAPTAIN ROYAL ARMY MEDICAL CORPS

Captain G R Heard who was killed in action in France on July 2nd at the age of 30, was the elder son of Richard W Heard, of Devonport He received his education at Plymouth College, passing the matriculation examination of London University in 1903, after which he commenced his medical studies at the London Hospital, obtaining the qualification of the Conjoint Board in 1909 He was enthusiastic at his work and popular among his fellow students After leaving the hospital he held a house appointment at the Newark Hospital for nearly two years, when he had a temporary breakdown in health Upon recovery he obtained a surgeoncy on the s s *Herefordshire* of the Bibby Line and made two voyages to Rangoon This was followed by an appointment under the Essex county council, which he retained till December 1914, when he obtained a commission in the Royal Army Medical Corps, and was attached to the 10th Battalion Royal Warwickshire Regiment as medical officer He met his death as he was attending to a wounded man under fire, a piece of shrapnel passing through his chest Captain Heard was married only a month

DEATHS AMONG THE SONS OF MEDICAL MEN

The following sons of medical men must be added to our lists of those who have fallen during the war —

Second Lieutenant A. N Marshall, Bedfordshire Regiment, son of the late Dr W N Marshall, of Newent, Glos

Second Lieutenant J E P Cockey, Liverpool Regiment, only son of Dr E Cockey, of Frome, Somerset

Lieutenant G L B Fayle, Royal Engineers, third son of Lieutenant-Colonel B J L Fayle, R A M C, of Clifton, Bristol

Second Lieutenant W E H Sansom, Royal Lancaster Regiment, son of Lieutenant W Sansom R A M C, of Barrow in Furness

Lieutenant G R S Layng Gloucestershire Regiment, attached to the Trench Mortar Battery, third surviving son of the late Dr H Layng, of Swatow, China

Second Lieutenant H B Goudie Cameron Highlanders elder son of the late Dr H Goudie, of South Shields

Captain M C Hayward, R A M C, son of the late Mr H H Hayward, M R C S, of Queen Anne street London, W

Second Lieutenant H Floyd, Royal Flying Corps, only son of Dr S F Floyd, of Kilkeel, Co Down

Lieutenant R H Lawson, Rifle Brigade, eldest son of Mr H Lawson, M R C S, L R C P, of Chislehurst Kent

Second Lieutenant A J Berry, Lancashire Fusiliers, elder son of Dr J J Berry, of Pendlebury, Manchester

HEIGHT AND WEIGHT STANDARDS AND TESTS FOR RECRUITS.—The question raised by a correspondent as to whether there is a standard height for the Army does not admit of categorical answer Some standards of physical development have been laid down by the military authorities for determining whether a man is fit to be enlisted into the British Army these refer to the relations between the height, the weight, the chest measurement and the age of the recruit, and vary according to the arm of the Service which he wishes to join There is no actual minimum, or standard, of body weight, but certain weights are specified as a guide, indicating the point at and below which a specially careful physical examination must be made Further, any eligible recruit who does not fulfil every requirement laid down in the official tables may be recommended for special enlistment on application to the War Office, or in other cases to the officer commanding the regiment, or the officer in charge of the records of the corps As to height the minimum for Infantry of the Line, for the Army Service, Army Medical, and Army Ordnance Corps, and for drivers in the Royal Field Artillery is 5 ft 3 in , the minimum of age being 18 years , for the Cavalry of the Line (Dragoons, Lancers and Hussars) the minimum is 5 ft 4 in. if under 20 years of age, and 5 ft 6 in if over 20 years, for drivers in the Royal Horse Artillery, for artificers, Royal Artillery and for sappers, Royal Engineers, the minimum is 5 ft 4 in For the Foot Guards the minimum is 5 ft 8 in , for the Household Cavalry 5 ft 11 in. and for the military wing of the Royal Flying Corps 5 ft 2 in The standards of weight and of chest measurement vary according to the man s height and also according to the corps in which he wishes to enlist, as well as according to his age. He must also possess a given range of expansion—that is, the difference between the chest girth when fully expanded and when the lungs have been emptied of air as far as possible For instance, in the Infantry and Medical and Ordnance Corps a recruit of 18 years, if under 5 ft. 5 in in height, should weigh not less than 112 lb , have a chest girth when fully expanded of 33½ in , and a range of expansion not less than 2 in , if his height is from 5 ft 8 in to 6 ft his weight should be not less than 118 lb , his chest girth at full expansion 34½ in , with the same range of expansion , if 6 ft in height, or upwards, his weight should be 122 lb chest girth 35 in , and range of expansion 2½ in For the Cavalry of the Line Royal Artillery and Royal Engineers a recruit of the same age and under 5 ft 5 in in height should weigh 115 lb , have a chest girth of 34½ in , with 2 in range of expansion , if his height is between 5 ft 8 in and 6 ft , his weight should be 118 lb , his chest girth 35½ in , with 2 in range of expansion , if 6 ft in height or upwards, his weight should be 122 lb his chest girth 36 in , and range of expansion 2½ in These tests and standards and the determination of the physical equivalents have been arrived at from a large series of observations With the detailed examination carefully performed, no recruit will be admitted into the Army suffering from defect likely to interfere with his usefulness as a soldier, nor, on the other hand will any man be rejected as unfit to serve unless there is some decided physical disability

THE WOUNDED ALLIES' RELIEF COMMITTEE — The committee have offered to present a motor field surgery to the Italian Government and the offer has been gratefully accepted Sir William Collins who in 1909 promoted in Parliament the passage of the Metropolitan Ambulances Act has planned the construction of the vehicle for the Committee and it is now almost complete The chassis is adapted to carry 4 tons is highly sprung and the engine is petrol driven motor of 25 h p The wheels are pneumatic tyred and the rear wheels are twinned The body which is painted externally the service green of Italy, bears the red cross and consists of a spacious theatre 9 ft 6 in long, 6 ft. 6 in wide and 6 ft 8 in high enamelled white inside with an annexe intervening between it and the driver s seat and separated from the theatre by a sliding door In this annexe are fitments for instrument cupboard and drawers of galvanised iron on one side, and on the other sterilisers for instruments and water heated with paraffin burners stock lotion jars, and an array of drums for sterilised dressings Tanks containing 60 gallons of water and petrol for the engine are cleverly stowed away in roof and floor Ventilation is secured by electric fans louvred sides, and by top windows opening with a simple mechanism These windows, of wired glass, give a fair top-light by day, and an electric installation provides two 100 c p lights and a movable hand lamp for nightwork No fixed furniture is in the theatre itself except a copper sink on the near side and to the front, over which water and lotion taps are conducted The floor is of sheet lead, which can be flushed and cleansed with a squeegee Four upright iron stanchions are adapted for fixation to the floor at suitable distances to receive the handles of a stretcher —as it is contemplated that many cases requiring prompt dressing or minor surgery will be dealt with on the stretchers, though an up to-date operating table is provided for set operations The back of the theatre has folding doors opening full width, and steps with easy gradient are supplied for the bearers to enter and leave by When not in use the steps are slung under the chassis at the back There is also a folding ladder whereby access to the roof is obtained for adjusting a canvas cover to keep out wet or dust or to screen from excessive sunlight The usual theatre furniture, such as tables for anæsthetist and dressings and stools can be secured to the walls when the vehicle is in locomotion All corners are rounded and the whole interior is beautifully finished The body has been constructed by Messrs Mulliner on specifications drawn by Mr John Walford on Sir William Collins's design, and the fittings are by Messrs Arnold and Sons There will be a Press view of the motor field operating theatre in the grounds of Aldford House, Park lane, to-day Sept 1st, from 2 to 4 P M , when Mr Walford will be present to explain its working

For the Italian Red Cross—As the disabled Belgian soldiers who have been under the care of the Wounded Allies' Relief Committee at the Home for Disabled Belgian Soldiers, 45, Courtfield gardens Kensington are now provided by the Committee with artificial limbs and trained in various industries, this particular home has been closed, and the furniture and bedding are about to be presented to the Italian Red Cross for the benefit of a new "Home of Rest for Sick and Wounded Italian Soldiers" The home, which is the idea of Mrs Henry Watkins, who has been working on the Italian front for nearly a year, is situated among the hills behind Cormons, and beds and other furniture are needed for it

MILITARY DECORATIONS—By Royal Warrants last week a bar was instituted for the Distinguished Service Order and for the Military Cross, and recipients of the latter are now entitled to add the letters M C after their names The Military Cross still does not confer any individual precedence It is intimated that the insertion of the letters M C after the names of recipients will be carried out in the October Army List

WAR HOSPITAL MAGAZINES—Under the title of *The Fourth* (Denmark Hill, S E , price 3*d*) the 4th London General Hospital issues an interesting magazine In addition to amusing prose poetry and illustrations, the history of the unit is commenced by Major George N Biggs, the registrar Reproductions of portraits of Colonel Atwood Thorne, V D , lately officer commanding the hospital, and of members of the staff Major F W Mott R A M C (T) Captain W Brown, R A M C , Captain W C Bosanquet, R A M C (T), and Major Albert Carless, R A M C (T) are included —The *Norfolk War Hospital Magazine* (Norwich, price 6*d*) has reached its fifth number, and, like the preceding contains topical and humorous articles and notes The profits derived from the sale of these magazines are devoted to extra comforts for the wounded.

POLIOMYELITIS IN ABERDEEN AND DISTRICT —Only three cases of acute poliomyelitis were notified in Aberdeen last week making a total of 66 cases in all Dr J P Watt, medical officer of health for Aberdeen county, stated that five or six cases had occurred in the county, and at his suggestion the Deeside District Committee made the disease compulsorily notifiable

A NEW HOSPITAL FOR PARALYSED AND DISABLED OFFICERS —St John's Lodge, Regent's Park, London, having been lent by the Treasury and the Office of Woods and Forests to the British Red Cross Society, it has been decided to use it as a hospital for the treatment of paralysed and disabled officers Sir John Ellerman has undertaken to defray expenditure for one year

Medical News.

SOCIETY OF APOTHECARIES OF LONDON —At examinations held recently the following candidates were successful —

Surgery —C P Barber (Section II) Charing Cross Hospital I. H Beattie (Sections I and II.) Oxford W Burridge (Sections I and II) Oxford and Guy's Hospital S F Cheesman Charing Cross Hospital R F Jarrett (Sections I and II.) London Hospital L. A B Moore (Sections I. and II) Guy's Hospital T W Robbins (Sections I and II) London Hospital C Segal (Section I) Berne S C Varley (Sections I and II) Oxford and St George s Hospital C G G Winter (Sections I and II.) St. Mary's Hospital and R. H Yolland (Sections I. and II) Cambridge and King's College Hospital.

Medicine —C P Barber (Sections I and II) Charing Cross Hospital I H Beattie (Sections I. and II) Oxford W Burridge (Section I) Oxford and Guy's Hospital H M Hobson (Sections I. and II) London Hospital C A. Mortlock Brown (Section I) Royal Free Hospital- T W Robbins (Sections I and II) London Hospital H. St. H. Vertue (Sections I and II.) Oxford and Guy's Hospital and J M. Wall (Sections I. and II) St. Thomas s Hospital

Forensic Medicine —H H Bailey London Hospital I H Beattie Oxford E V Briscoe, St. Mary's Hospital W Burridge, Oxford and Guy s Hospital S G Kastellanski, London Hospital E O Morrison Cambridge and St Mary's Hospital T W Robbins London Hospital I H Syed Manchester F A. Unwin Westminster Hospital S C Varley Oxford and St George s Hospital C G C Vawdrey St Mary s Hospital L J Vincent. Cambridge and St Mary's Hospital and H. St H Vertue Oxford and Guy's Hospital.

Midwifery —H H Bailey London Hospital I H Beattie Oxford W A. Bibby Manchester C W Bower Cambridge and St Bartholomew's Hospital W Burridge, Oxford and Guy s Hospital P C C. Fenwick St Thomas s Hospital J Mitchell Edinburgh T W Robbins, London Hospital; W Stansfield Manchester S C Varley Oxford and St George s Hospital and B Walley Manchester

The Diploma of the Society was granted to the following candidates enabling them to practise medicine surgery and midwifery —H H. Bailey C P Barber I H. Beattie S F Cheesman H. M. Hobson, L. A. B Moore, E O Morrison, T W Robbins J M Wall and R H Yolland.

ROYAL MEDICAL BENEVOLENT FUND —At the last meeting of the committee 23 cases were considered and £201 10s granted to 18 of the applicants The following is a summary of some of the cases relieved —

Daughter aged 67 of M B Glasg who practised at Glasgow and died in 1871 Until the war commenced was able to make a bare existence by giving music lessons Too old to obtain other work Her sister is an annuitant of the Fund Voted £10 —Daughter aged 35 of M.D Dub who practised near London and in British Guiana and died in 1889 Left without means and suffers from tuberculous glands Mother has married again, but cannot afford to entirely support applicant Relieved 10 times, £90 Voted £12 in 12 instalments —Daughter aged 66 of M D Edin who was a deputy inspector general in the Army Medical Service and died in 1878 Applicant s small income is now exhausted and she is too old to obtain permanent employment Earns just a little by sewing machine work. Rent paid by a friend Voted £12 in 12 instalments —Widow aged 49 of M.R C S Eng who practised at Bampton and died in 1906. Applicant s health is very bad Was left with an income of only £22 per annum and a young daughter who is at the Drapers Company School but home for holidays Her rent is paid by a brother Owing to the high price of food in difficulties Voted £10 in two instalments and referred to the Guild.—Widow aged 56 of M R C S Eng who practised at Kearnsey and died in June this year after four days illness from diphtheria, and left his wife and two daughters aged 14 and 16 quite unprovided for Lives in own house, which is heavily mortgaged and her solicitor informs her that when the debts are paid there will not be anything left Husband s mother aged 81, is also dependent on her Requires some immediate help Voted £10 and referred to the Guild —Daughter aged 69 of M R C S Eng who practised at Andover and died in 1869 Was left without means and managed to earn a living as a governess until ill health and old age overtook her Only income two pensions a total of £45 from other societies and she has a great nephew aged 4½ years dependent on her Received some help ten years ago Voted £5 and referred to the Guild —Daughter aged 64 of M R.C.S Eng who practised at Dorchester and died in 1892 Applicant whose general health is bad and her eyes very weak has for some years lived with a widowed sister who is a teacher in France but owing to the increase in the cost of living she cannot continue to keep her Only income an occasional small gift from her brother Her father for many years subscribed to the Fund. Voted £10 —Widow aged 50 of L R C.P Edin who practised at Stamford and died in 1910 She was left totally unprovided for with one son now aged 19 and in the Army Applicant is a chronic invalid and has had her breast removed for cancer She lives with a sister who cannot afford to keep her Relieved three times £56 Voted £18 in 12 instalments —Daughters aged 50 and 58 of M.D Aberd who practised at Luddenden Yorks and died in 1909 Both are chronic invalids, one suffering from incurable deafness Only joint income £55 Relieved three times £38 Voted £18 in 12 instalments jointly —Widow aged 58 of M R.C S Eng who practised at Wellingborough and died in 1911 Applicant was left without means She has now a post as housekeeper at £20 per annum Relieved five times, £56 Voted £6 in 12 instalments —Daughters aged 44 and 52, of L.S A. Lond. who practised at Sydenham and died in 1903 One suffers from epilepsy and the other from rheumatism and persistent headaches Only joint income £48 per year Relieved eight times £95 Voted £18 in 12 instalments jointly —Daughter aged 59, of M.R C S Eng. who practised at Wymondham and died in 1870 Lost all her income through a defaulting trustee, and has recently lost £15 per annum allowed by a relative. Acts as companion to a lady in return for board and lodging Relieved eight times £40 Voted £12 in 12 instalments —Widow aged 52, of L R C P Glasg who practised at Walsall and died in 1902. She was left entirely without means with two young daughters, who are now earning a little and paying for their board. The applicant is able to earn about £20 per year by needlework. Relieved 10 times, £106 Voted £12 in 12 instalments —Widow aged 25 of M.B Oxon. M.R.C S Eng who joined the R A.M.C on qualifying in 1914 and was killed in action on July 13th 1916 Applicant is left with two children, ages 4 years and 11 months totally unprovided for, and up to the present has not received any pension or allowance from the War Office. Voted an immediate grant of £10 and referred to the Guild and to other organisations that will probably help until the War Office pension is arranged —Daughter aged 66 of M.R C.S Eng who practised at Liverpool and died in 1851 Applicant is a confirmed invalid and has to spend most of her time in bed and have a nurse several times each week Income £7 from dividends and friends subscribe about £50 per annum All her means were lost some years ago through a bank failure Relieved three times £36 Voted £12 in 12 instalments.

Subscriptions may be sent to the honorary treasurer, Dr Samuel West, at 11, Chandos street, Cavendish-square, London, W.

A GENEROUS LEGATEE —Miss Margaret McNally, of Barrington, Northumberland, an Army nursing sister and the daughter of a working miner, recently decorated with the Red Cross medal for carrying wounded in under shell fire, is a legatee under the will of a lady whom she nursed. Miss McNally intends to found an orphanage for the children of fallen soldiers with the £4300 she is to receive under the will

ROYAL INSTITUTE OF PUBLIC HEALTH —A course of instruction for the degrees and diplomas in public health, with the necessary laboratory work, will commence on Oct 2nd, and special arrangements have been made to suit the convenience of those (men and women) holding appointments Researches and clinical examinations of all kinds—including the Wassermann test—are undertaken in the bacteriological, serological, and chemical laboratories for public bodies and medical practitioners Courses of instruction are arranged three times yearly (October January, and May) for tuberculosis officers, school medical officers, medical practitioners, and others Further particulars can be obtained from the Secretary, 37, Russell square, W C

HEALTH OF BELFAST —The annual report of the medical officer of health of Belfast for 1915 is estimated on a population of 403,000 The birth rate was 25 3 per 1000 of the population, a decrease of 2 7 as compared with the preceding year, the death rate was 17 9, which is a decrease of 1·0 per 1000 With the exception of 1911, the death rate was the lowest ever recorded in Belfast The zymotic death rate was 1 7 per 1000 of the population, a decrease of 1·0 as compared with that of the previous year The mortality from phthisis, pneumonia and other diseases of the respiratory organs was 6 2 per 1000 of the population 6 2 per 1000 of the population suffered from infectious disease, whilst during the preceding year it was 7·5 per 1000 The scarlet fever epidemic, which has been so long prevalent in Belfast, showed signs of declining: 1994 cases were notified, with a 5 3 per cent mortality, which is a decrease of 15 5 per cent in the number of cases of notifications and 36 3 per cent. in the number of deaths registered There were 71 cases of cerebro-spinal meningitis with 39 deaths (a mortality of 54 9), and only 1 case of acute poliomyelitis As regards infantile mortality, the death rate per 1000 births was 137 as compared with 143 in 1914, 144 in 1913, and 129 in 1912

MEDICAL SICKNESS AND ACCIDENT SOCIETY —The usual monthly committee meeting of this society was held at 300, High Holborn, on August 18th, Dr F J Allan being in the chair The reports submitted showed that the sickness experience for the year has so far, been well under the expectation—this in spite of claims from many members on active service, which in some cases have been of a protracted nature It is estimated that some 1500 members of the society are serving in the Royal Army Medical Corps or Navy and other war services The society has up to the present invested over £20,000 in various War Loans and Exchequer Bonds, and has decided that such investments as it holds which may come under the new loans to Treasury, Scheme B, should be lent under such scheme A resolution of deep sympathy with Lady Horsley was passed at the last meeting on the death of Sir Victor Horsley, who has for many years been a trustee of the society It was decided to continue to accept new members holding temporary commissions in the Royal Army Medical Corps, and to insure them against war risks within certain limits without payment of any extra premium Members of the profession over military age and between the ages of 45 and 55 can insure in the society against sickness and accident and life assurance at very low rates as compared with the

terms offered by other companies for the same benefits Many of these members are doing part-time or perhaps whole-time work for the Royal Army Medical Corps in the United Kingdom, and it is of the utmost importance to those men doing voluntary part-time war work that they should be insured against extra risks to which they are liable The benefits offered by this society are specially designed to meet those cases at the lowest possible cost and all inquiries relative to these benefits should be addressed to the Secretary, Medical Sickness and Accident Society, 300 High Holborn, W C

A SMALL outbreak of small pox, five cases in all, has been reported at Mossley in Lancashire

AN extension of the Great Northern Central Hospital was opened last week by Lord Islington at the Public Library, Manor gardens Holloway road, N The total number of beds available is now 365, 230 for soldiers and 135 for civilians

THE ORDER OF THE HOSPITAL OF ST JOHN OF JERUSALEM IN ENGLAND —The King has appointed Colonel Howard Carr, C.B , A.M S , Dr Samuel Hamilton (from Honorary Associate) and Lieutenant-Colonel Edward Stewart R A.M.C , Knights of Grace of the Order of the Hospital of St John of Jerusalem in England Dr Roger Paul Ninnis and Major David Donald (Canadian Army Medical Corps) have been appointed Esquires of the Order

Corrigendum —THE HOSPITAL FOR SICK CHILDREN, Great Ormond street —Under this heading in the Students' Number of THE LANCET (August 26th) the names should read as follow Consulting Surgeon Sir W A. Lane, Bart Dental Surgeon Mr Warwick James Acting Resident Medical Superintendent Medical Registrar, and Clinical Pathologist Dr G Pirie. Acting Secretary Mr. James McKay

SCHOOL OF THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN —The subjects of the Minor examination of the Pharmaceutical Society (for registration as chemist and druggist") are botany chemistry and physics, practical chemistry, materia medica, pharmacy, practical pharmacy and dispensing and prescription reading Fee 10 guineas, for each subsequent examination after failure, 3 guineas The advanced or Major examination (for registration as 'pharmaceutical chemist') includes botany, chemistry and physics practical chemistry and materia medica Fee 3 guineas Lecturers —Chemistry and physics Professor Henry L Smith B Sc F I C Botany Mr C H Warner, B Sc Pharmaceutics Professor Greenish, F I C F.L S The inaugural address will be delivered on Wednesday Oct 4th Medical students are admitted to the lectures and laboratory work in any or all the courses Certificates of instruction in this school are received by the Conjoint Board of the Royal Colleges and by the University of London. Application for admission to the school, or for further information may be made to the Dean, Professor Greenish, 17 Bloomsbury square, London, W C

Appointments

Successful applicants for vacancies Secretaries of Public Institutions and others possessing information suitable for this column, are invited to forward to THE LANCET *Office directed to the Sub-Editor not later than 9 o clock on the Thursday morning of each week such information for gratuitous publication*

MALCOLM R M D St And has been appointed Medical Officer for the Bolton-on Dearne and Thurnscoe District

MARRIOTT F L M S S A Certifying Surgeon under the Factory and Workshop Acts for the Tibshelf District of the county of Derby

WYNNE J DARLEY M.B B Ch M R C.S., Medical Officer of St Faith s Workhouse and District Medical Officer of St Faith s Union Norwich.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index)
When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor

BATH, WINSLEY SANATORIUM —Assistant Resident Medical Officer Salary £250 per annum with board &c

BATTLE, NORANHURST HOSPITAL —Resident Medical Officer

BIRMINGHAM AND MIDLAND EYE HOSPITAL, Church street.—Resident Surgical Officer Salary £300 per annum with residence &c.

BIRMINGHAM CITY EDUCATION COMMITTEE —Two Temporary Assistant School Medical Officers Salary for whole time officer £300 per annum for part time officer pro rata.

BRISTOL UNIVERSITY —Demonstrator in Physiology Salary £150 per annum.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray s Inn road W C —Resident House Surgeon Salary at rate of £50 per annum with board &c.

GUILDFORD ROYAL SURREY COUNTY HOSPITAL.—House Surgeon

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST Brompton —Two House Physicians for six months Salary 30 guineas.

HOSPITAL FOR SICK CHILDREN Great Ormond street London —Assistant Casualty Medical Officer for six months Salary £30 with board &c.

HUDDERSFIELD COUNTY BOROUGH.—Assistant School Medical Officer Salary £300 per annum

ISLE OF MAN LUNATIC ASYLUM.—Assistant Medical Officer Salary £200 per annum, all found

LEEDS PUBLIC DISPENSARY —Female Resident Medical Officer Salary £200 per annum with board &c

LIVERPOOL, BROWNLOW HILL INSTITUTION —Resident Assistant Medical Officer Salary at rate of £300 per annum with rations &c

MANCHESTER, ANCOATS HOSPITAL.—House Physician Salary £200 per annum with board, &c.

MANCHESTER CORPORATION —Temporary Assistant Tuberculosis Officer Salary at rate of £350 per annum

PADDINGTON GREEN CHILDREN'S HOSPITAL, W —Clinical Assistant in Out patient Department

PLYMOUTH, BOROUGH LUNATIC ASYLUM.—Medical Officer Salary £600 per annum a furnished house, &c

RHONDDA URBAN DISTRICT COUNCIL —Female Assistant Medical Officer of Health and School Medical Officer Salary £350 per annum

SHEFFIELD UNIVERSITY —Demonstrator in Pathology and Bacteriology Salary at rate of £300 per annum

SUNDERLAND ROYAL INFIRMARY CHILDREN S HOSPITAL.—Resident Medical Officer for six months Salary £150 per annum with board &c

WESTERN OPHTHALMIC HOSPITAL, Marylebone-road W —Non Resident House Surgeon. Salary at rate of £100 per annum

WESTMINSTER CITY UNION INFIRMARY Fulham road S W —Temporary Assistant Medical Officer Salary £250 per annum with board &c.

THE Chief Inspector of Factories Home Office, London S W gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Bromsgrove, Worcester at Crewkerne Somerset at Gortin Tyrone at Keswick Cumberland at Misterton Nottingham and at St. Anne s-on the-Sea, Lancaster

Births, Marriages, and Deaths

BIRTHS

ATLEE.—On August 22nd, Dorothy (*née* Hamley) wife of C N Atlee Lieutenant R A.M C (T.) of twins boy and girl

DERHAM REID —On August 20th at Beach-terrace Newbiggin-by-the-Sea, the wife of J Derham Reid, Lieutenant, R.A.M.C (T) of a daughter

HENRY —On August 15th, at Scarborough to the wife of Captain Herbert Henry R.A.M C a daughter

KING —On August 22nd, at Albany-crescent, Claygate, Surrey the wife of Lieutenant Gordon B King R.A.M.C of a daughter

MANSON —On August 27th at Kingston the wife of Kenred Manson M.B. B S Durh. West African Medical Staff of The Cottage Silvermere Cobham, of a son

O GRADY —On August 23rd at Lower Mount street, Dublin the wife of Lieut.-Colonel Standish de Courcy O'Grady R A M C of a son

POMEROY —On August 16th at Innisfree Woking to the wife of Lieutenant J M Pomeroy R.A.M C a son.

WILLIAMSON —On August 17th at Pentland terrace Edinburgh, the wife of Major A. Jeans Williamson R.A.M C —a daughter

MARRIAGES

HICK—TAPPLY —On August 23th at All Saints Notting hill, by the Rev F Murray Tapply M.A. brother of the bride, Rupert Bannantyne Hick, M R C S L R C.P Lieutenant R.A.M.C elder son of Dr and Mrs Henry Hick, of New Romney Kent to Katharine Grace, youngest daughter of the Rev and Mrs Frederick Tapply of Lyminge Kent.

MACDONALD—HENDERSON —On August 24th at Regent-square Presbyterian Church London Ian Macdonald, M.D Paris M D Edin Seville and Huelva, to Elizabeth Henderson, of the Q A.I.M.N S.R eldest daughter of Peter Henderson, Huntly Aberdeenshire

ROBSON—ASHTON —On August 16th, at the Welsh Calvinistic Chapel R B Robson Captain, R.A.M C. (T.) to Bathsheba Jane, daughter of the late Mr and Mrs. Ashton Carno Montgomeryshire

SOOTHILL—BRADFIELD —On August 19th at the Church of St. Andrew Well street W Victor Farrar M A. M B Captain R.A.M C to Kathleen Helena, only daughter of Mr O B radfield

DEATHS

GILES —On August 24th at Plymouth, George Michael James Giles M B Lond. F R C S Lieutenant Colonel, I M S (retired) and C.A.M S (retired) of Caulderwood Kingston Ontario, Canada, son of the late Captain George Giles, R.N

HAYWARD —On August 23rd, at the Howard Home Brighton from acute septic pneumonia Milward Cecil Hayward, Captain R.A.M C (T) son of the late Henry Howard Hayward, Queen Anne-street.

LOBB.—On August 16th at Kano Nigeria, Hubert Peche Lobb M R C S L R C P Lond., of Endleigh New Milton Hampshire Provincial Medical Officer Northern Nigeria, aged 40 years

N B —A fee of 5s is charged for the insertion of Notices of Births Marriages and Deaths

Notes, Short Comments, and Answers to Correspondents.

VITAL STATISTICS OF ZANZIBAR

A REPORT on the Blue Book of the Zanzibar Protectorate for the year 1915, prepared by the Chief Secretary, Mr J H Sinclair, C M G, has been received at the Colonial Office and presented to both Houses of Parliament The total population is given as 197,199, that of the Island of Zanzibar being 114,069, and that of the Island of Pemba 83,130 The town of Zanzibar has a population of 35,262, composed chiefly of Swahilis (20,285), but including 7720 Indians, 3639 Arabs, 2175 Comorians, and small groups of other nationalities, the British being represented by 121, the German by 35, French 19, Portuguese 18, Italian 17, and Greek 11 The density of population is estimated at 175 per square mile in Zanzibar and 219 in Pemba The birth rate (births registered) for the year 1915 was 19 7 per 1000 as compared with 11 3 in 1914 Previous reports have always shown a marked decline from year to year in the birth rate among Swahilis During the latter part of 1915, however, steps were taken to ensure a more accurate record of births being kept, and although sufficient time has not yet elapsed for the correct ratio of births to deaths to be disclosed, it appears that following on the enforcement of the registration of births and, contrary to the previously accepted theories, there is a preponderance of births over deaths The islands were free from any severe epidemic of disease during the year, and the health of the community was fair The deaths from tuberculosis registered in the town amounted to 157, as compared with an average of 196 for the last seven years There were 92 fatal cases of malaria, as against an average of 154 There were 2 cases of plague and 3 of small pox In the European Hospital (opened in April, 1913) 335 cases were treated, as compared with 122 in 1914, the increase being principally due to the admission of sick and wounded officers and men of His Majesty's naval and military forces In the Native Hospital, which now contains 60 beds, 1171 in patients and 8938 out-patients were treated There were 79 in patients and 2149 out-patients treated at the Mkokotoni Dispensary and 11 in patients and 1675 out-patients at the Chwaka Dispensary The Infectious Diseases Hospital at Gulioni contains 50 beds 12 patients and 69 contacts were admitted during the year, as compared with 505 patients in 1914, and the deaths numbered 3 as against 26 There is one Government hospital in Pemba besides two dispensaries and in these during the year 443 in patients and 7568 out-patients were treated The number of lepers in the two islands amounts probably to about 450 Of these 99 are segregated in one settlement —Zanzibar, which is subsidised by the Government and administered by the Roman Catholic Mission under the supervision of the medical officer of health—and 204 in three settlements in Pemba, while the remainder are at large

PROPRIETARY REMEDIES AND COCAINE

A CORRESPONDENT tells us that a patient of his, who has for some years suffered from asthma and used a proprietary nostrum, has received a printed form prescribing the "cure" with the suggestion that he should apply to a medical man to get the order signed The preparation in question is known to contain cocaine, which brings its sale within the new regulations, and the pharmaceutical chemist cannot supply it except on the written order of a medical practitioner Obviously a qualified medical man should not order for a patient a preparation the contents of which he is not certain of

COINCIDENT RASHES

Mr Henry Bazett writes as follows —"I have seen a most curious and interesting demonstration of the very limited extent to which an attack of chicken pox protects against one of measles immediately ensuing The case of measles is one in which there is a most profuse rash covering practically the whole of the skin of the back But on the shoulders there remain about half a dozen drying up pustules of a previous attack of chicken pox and round each of these is a perfect circle of white skin about the size of the old fourpenny piece, beyond which the measles rash is as flaming as on the rest of the surface I have once before had a case where the chicken pox rash came out as the measles one faded Is the double infection common?" Under the Infectious Disease Act of 1889 neither chicken pox nor measles was made notifiable under compulsion Dr John MacCombie states that chicken pox frequently coexists with measles, and Dr Dillon Brown, of New York, that the chicken pox rash may sometimes resemble the eruption of measles Some idea of the frequency of chicken pox occurring coincidently with notifiable infections may be gained from a study of Dr Caiger's figures During seven years at the hospitals of the Metropolitan Asylums Board about ½ per cent of the admissions for scarlet fever and ¼ per cent of the admissions for diphtheria had a chicken pox rash, and during convalescence this rash appeared in nearly 3 and 1 per cent respectively Chicken pox came second in each case as a probable coincident infection

HOLIDAYS FOR DOCTORS

To the Editor of THE LANCET

SIR,—Unfortunately, this year many hard worked general practitioners will be deprived of their holiday It seems a great pity that some steps cannot be taken to arrange for exchanges of practice during the summer months between practitioners in towns and rural districts Such a plan would be a rest to both practitioners, as the change of employment would be very interesting Work in the country needs no recommendation to the town practitioner, but it is perhaps more difficult to see the advantage the other way There are, however, many things in a busy town which would interest the country practitioner's wife, and facilities might easily be provided to enable the doctor to engage in some form of post graduate study, especially in towns where there was a medical school Facilities for post-graduate study are most earnestly needed, and, so far as one can see, such exchanges might afford an easy way of obtaining it In the Army, for promotion, the medical officers are compelled to obtain periodical instruction, with very great benefit to themselves, and it seems strange that nobody attempts to point out that civil practitioners might also adopt a similar system with advantage

During 1915 I was able to leave my work here for a short time and relieve other doctors working in London hospitals, and this was very beneficial to us all

I am, Sir, yours faithfully,

A BYGOTT, M D Lond, D P H,
County Medical Officer &c.

Bury St. Edmunds, August 19th 1916

A MINIATURE PORTABLE NITROUS OXIDE SET

Messrs W H Bailey and Son, Limited, of 38, Oxford street, London, W, have recently introduced a small portable gas cylinder containing nitrous oxide which provides a very handy apparatus for supplying this gas for anæsthetic purposes The cylinders are made in two sizes—"A" containing enough gas to fill the ordinary three gallon bag about twice and "B" about three times The cylinder and valve are entirely of metal, and are tested to 3500 pounds pressure to the square inch The valve for releasing the gas works telescopically The nozzle of this valved key is made to fit into the end of any ordinary gas bag or tubing The output of gas is completely under control, and there is thus a considerable economy effected The A cylinder is quoted at 15s 6d, and the B cylinder at 16s each, and the refilling of those costs 5s and 6s per dozen respectively The convenience of the apparatus and the availability of a supply of pure nitrous oxide at hand will be appreciated

PEMMICAN

To the Editor of THE LANCET

SIR,—Your correspondent Enquirer will find the derivation of the word pemmican in the British Empire Universities Modern English Illustrated Dictionary—viz, *Pemmican, pem'i kan n* lean meat, dried, pounded and pressed into cakes This I have copied from the Dictionary

I am, Sir, yours faithfully,

Barnes S W August 21st 1916 J BRINDLEY-JAMES

LONGEVITY AMONG GREAT MEN

To the Editor of THE LANCET

SIR —With reference to the note in THE LANCET of August 19th on longevity among great soldiers the longevity of the Presidents of the United States is also remarkable Their ages were as follows 67 90 83 85 73 80, 78, 79, 68, 71 53, 65, 74 64, 77, 55, 65, 63 70, 49, 56, 71 67 58 Those at 55 49, and 58 were respectively assassinations of Lincoln, Garfield, and McKinley The ages of these 24 men total to 1663 years, or an average of 69 years each showing, as was stated, that the stress and responsibility of leadership seem to have no effect on longevity The following causes of death are those popularly accepted in the case of the Presidents Washington, pneumonia (more correct accounts state "œdematous affection of the windpipe" or "membranous croup"), J Adams debility, Jefferson chronic diarrhœa, Madison, debility, Monroe debility, J Q Adams paralysis, Jackson, consumption and dropsy, Van Buren asthmatic catarrh, Harrison, bilious pleurisy, Tyler bilious attack (with bronchitis), Polk, chronic diarrhœa, Taylor, cholera

morbus and typhoid fever, Fillmore debility, Pierce, dropsy and inflammation of stomach, Buchanan, rheumatic gout, Lincoln, assassination, Johnson paralysis, Grant, cancer of the tongue and throat, Hayes, paralysis of the heart, Garfield, assassination, Arthur, Bright's disease, paralysis, and apoplexy, Cleveland, debility, B Harrison, pneumonia, McKinley, assassination

I am, Sir, yours faithfully,

London, August 19th 1916 A B C

EMETINE BISMUTH IODIDE

Mr W Martindale, of 10, New Cavendish street London, W has submitted to us a specimen of the above salt, the use of which in the treatment of carriers of amœbic dysentery was described in THE LANCET of July 29th, p 183 For intestinal medication the salt is contained in the "stearette," which survives its passage unchanged through the gastric juice

RUSSO BRITISH TRADE DIRECTORY

A SECOND edition of the "Directory of British Manufacturers for Russian Trade is in preparation by the Russo-British Trade Exchange, Ltd, 16, Regent-street W This contains a guide for Russian buyers, a supplement in English entitled "Sidelights on Russia trade headings in both Russian and English and an index in both languages The first edition consisted of 6000 copies and was distributed gratis to chambers of commerce and public libraries in the commercial centres of Russia Such a work should be taken advantage of by firms making drugs, surgical appliances and dressings There is abundant need for British manufacturers to make their wares known in Russia and to take some pains to replace German made goods

G —The following references may be useful to a light sleeper in the neighbourhood of a noisy thoroughfare — Gun Deafness and its Prevention, by Jobson Horne, M D B C Cantab, THE LANCET, August 15th 1914, p 462, and letter in the following issue, p 526, giving the name of the producer of ear plugs which so far as tested meet all the requirements mentioned in the article (Mr F Rogers, 327, Oxford street London W) The Malloch Armstrong Ear Defender (with illustration) THE LANCET, Dec 26th, 1914 p 1497, and letter in the following issue p 46, giving name and address where further particulars may be obtained (Mr H N G Cobbe, 86 York street, Westminster, S W)

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c

POST GRADUATE COLLEGE West London Hospital Hammersmith road W

MONDAY —2 P M. Medical and Surgical Clinics X Rays Mr Gray: Operations Mr B Harman: Diseases of the Eye Dr Simson: Diseases of Women

TUESDAY —2 P M. Medical and Surgical Clinics X Rays Mr Baldwin: Operations Dr Banks Davis: Diseases of the Throat, Nose and Ear Dr Pernet: Diseases of the Skin

WEDNESDAY —10 A M. Dr Saunders Diseases of Children Dr Banks Davis Operations of the Throat Nose and Ear 2 P.M. Medical and Surgical Clinics X Rays Mr Pardoe Operations Dr Simson Diseases of Women

THURSDAY —2 P.M Medical and Surgical Clinics X Rays Mr Gray Operations Mr B Harman: Diseases of the Eye

FRIDAY —10 A.M Dr Simson: Gynæcological Operations 2 P M Medical and Surgical Clinics X Rays Mr Baldwin: Operations. Dr Banks Davis Diseases of the Throat Nose and Ear Dr Pernet Diseases of the Skin

SATURDAY —10 A.M. Dr Saunders: Diseases of Children Dr Banks Davis: Operations of the Throat Nose and Ear Mr B Harman Eye Operations 2 P M Medical and Surgical Clinics X Rays Mr Pardoe: Operations

NORTH EAST LONDON POST GRADUATE COLLEGE Prince of Wales's General Hospital Tottenham N

MONDAY —Clinics:—10 30 A.M Surgical Out patients (Mr E Gillespie) 2.30 P M Medical Out patients (Dr T R Whipham): Gynæcological Out patients (Dr Banister) 3 P M Medical In patients (Dr R M Leslie)

TUESDAY —2.30 P M Surgical Operations (Mr Carson) Clinics:—Medical Out patients (Dr A G Auld) Surgical Out patients (Mr Howell Evans) Nose, Throat, and Ear Out-patients (Mr C H Hayton) Radiography (Dr Metcalfe) 3.30 P M. Medical In patients (Dr A. J Whiting)

WEDNESDAY —Clinics:—2.30 P M Throat Operations (Mr C H Hayton) Children Out patients (Dr T R Whipham) Eye Out patients (Mr R P Brooks) Skin Out patients (Dr H W Barber) 5.30 P M Eye Operations (Mr R P Brooks)

THURSDAY —2.30 P M Gynæcological Operations (Dr A. L Giles) Clinics —Medical Out patients (Dr A J Whiting) Surgical Out patients (Mr Carson) Radiography (Dr Metcalfe) 3 P M. Medical In patients (Dr R M Leslie)

FRIDAY —2.30 P M Surgical Operations (Mr Howell Evans) Clinics:—Medical Out patients (Dr A. G Auld): Surgical Out patients (Mr E Gillespie) Eye Out patients (Mr R P Brooks)

THE THROAT HOSPITAL, Golden square W

MONDAY —5.15 P M Special Demonstration of Selected Cases

THURSDAY —5.15 P.M Clinical Lecture

EDITORIAL NOTICES

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR" and not in any case to any gentleman who may be supposed to be connected with the Editorial staff It is urgently necessary that attention should be given to this notice

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office

Lectures, original articles, and reports should be written on one side of the paper only, *and when accompanied by blocks it is requested that the name of the author, and if possible of the article, should be written on the blocks to facilitate identification*

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication

We cannot prescribe or recommend practitioners

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor"

Letters relating to the publication, sale, and advertising departments of THE LANCET should be addressed "To the Manager"

We cannot undertake to return MSS not used

COMMUNICATIONS not noticed in our present issue will receive attention in our next

MANAGER'S NOTICES

VOLUMES AND CASES

VOLUMES for the first half of the year 1916 are now ready Bound in cloth, gilt lettered, price 16s, carriage extra

Cases for binding the half year's numbers are also ready Cloth, gilt lettered, price 2s, by post 2s 4d

To be obtained on application to the Manager, accompanied by remittance

TO SUBSCRIBERS

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423 Strand, London, W C, are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies &c, should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Friday mails to all parts of the world

TO COLONIAL AND FOREIGN SUBSCRIBERS

Subscribers abroad are particularly requested to note the rates of subscriptions given on page 4

The Manager will be pleased to forward copies direct from the Offices to places abroad at the rates shown, whatever be the weight of any of the copies so supplied

NEWSPAPERS FOR NEUTRAL COUNTRIES

Newspapers are not at present being sent forward to neutral European countries unless posted direct from the office of publishers or newsagents who have obtained permission from the War Office for this purpose The Publisher of THE LANCET has obtained the required permission, and he will forward copies direct from the Office to any neutral country on receipt of instructions

METEOROLOGICAL READINGS

(Taken daily at 8.30 a m. by Steward's Instruments)

THE LANCET Office August 30th 1916

Date	Barometer reduced to Sea Level and 32° F	Direction of Wind	Rainfall	Solar Radio in Vacuo	Maximum Temp Shade	Min. Temp	Wet Bulb	Dry Bulb	Remarks
Aug 24	29·810	S W		123	74	62	61	64	Cloudy
25	29 660	S	0·02	85	69	64	63	64	Cloudy
26	29 470	S W	0 45	123	70	61	61	63	Cloudy
27	29 590	S W	1·00	100	69	53	61	64	Cloudy
28	29 630	S W	0 40	123	74	57	59	61	Cloudy
29	29 574	N	..	61	61	59	57	60	Raining
30	29 ·04	N	1 41	63	56	53	52	53	Overcast

BOOKS, ETC., RECEIVED

ARNOLD EDWARD London
Treatment of Skin Diseases By W Knowsley Sibley M A., M.D B C Cantab M R C P Lond M R C S Eng Second edition Price 6s net

BELL, G AND SONS London
The Nation of the Future A Survey of Hygienic Conditions and Possibilities in School and Home Life By L Haden Guest, M R.C S Eng L.R C P Lond Price 2s net
Welfare Work: Employers Experiments for Improving Working Conditions in Factories By E Dorothea Proud B.A. Adel First Catherine Helen Spence Scholar With a Foreword by the Right Hon D Lloyd George P C M P Price 7s 6d. net.

CHURCHILL, J AND A. London
Materia Medica Pharmacy Pharmacology and Therapeutics Fifteenth edition By W Hale White M D Lond. M D Dub (Hon) Lieutenant-Colonel, R A.M C (T)

FROWDE, HENRY AND HODDER AND STOUGHTON London.
Principles of Diagnosis and Treatment in Heart Affections By Sir James Mackenzie M.D., F R S &c. Price 7s 6d net.

JARROLD AND SONS, London
Autobiography of Sir Peter Eade M D F.R.C P Edited by Sidney H Long M.D Price 7s 6d.

MILFORD HUMPHREY London
The Book of Sorrow By Andrew Macphail. Price 6s net

PITMAN SIR ISAAC, AND SONS London Bath New York, and Melbourne.
Medical Reporting in Pitman s Shorthand By H Dickinson. Price 3s net

SAUNDERS W B COMPANY London
Gynecology By Wm P Graves M D Professor of Gynecology at Harvard Medical School. Price 30s net
Diseases of the Umbilicus By Thomas B Cullen M.B., Associate Professor of Gynecology Johns Hopkins University Price 35s net
Medical Clinics of Chicago Vol I Part 6 Price, per year of six numbers 35s net

SCIENTIFIC PRESS THE, Limited, London
Mental Nursing By W H. B Stoddart M D F R C P Price 2s 6d net

THACKER, SPINK AND Co Calcutta and Simla
A Practical Guide to X Rays Electro-Therapeutics and Radium Therapy for Students and Practitioners By A E Walker, M.R.C S, L.R C P Major, I M.S Price 10s 6d net.

The following magazines, journals, &c. have been received —
Journal of the American Medical Association Ophthalmology American Journal of Surgery Archives of Pediatrics Ellingwood s Therapeutist Electrical Review Medical Journal of Australia, Pacific Medical Journal, Literary Digest New York Medical Journal, Optician, American Journal of Obstetrics Mercy and Truth Pediatrics Canadian Practitioner and Review New Zealand Medical Journal Scientific American &c.

Communications, Letters, &c., have been received from—

A —Messrs Allen and Hanburys, Lond Army and Navy Co-operative Society Lond. Ancoats Hospital Manchester Secretary of Anglo-French Drug Co Lond. Sir Clifford Allbutt, Lond.; Lieutenant Colonel G J Stoney Archer R.A.M.C Major Atkinson R.A.M C Lieutenant-Colonel Adami R A.M C

B —Dr D M. Barcroft, Lond. Dr Robert Bell Loch Awe British Hospitals Association Lond Secretary of, Mrs. C F Bickford Walhachin, B C Dr F Milnes Blumer Stafford Captain J S Bennett R.A.M C, Messrs Burroughs Wellcome and Co, Lond., Messrs. Burberrys, Lond Bootle Borough Hospital Secretary of Bengal Nagpur Railway Co Calcutta, Chief Medical Officer of Mrs. Beilby Bromsgrove Dr F Brooks Hindhead Messrs. F P Baker and Co, Lond.; Drs. Born and Smith Manchester Messrs S H Benson Lond. Mrs Burges Hartley Wintney Dr H M. Boshouwers Antofagasta Mr J F Briscoe Bournemouth; Birmingham City Education Committee Secretary of; Bristol University Registrar of Brighton and Sussex Medico-Chirurgical Society, Brighton Sub-Librarian of

C —Miss C A. Christopher Lond. Captain W T Chaning Pearce, R.A.M C Mr A. K. A. Cæsar Tunbridge Wells Dr F G Clemow C.M G, Lond. Miss Grace Campling Bexley Dr J F Corson, Colinton C W F Mr H. A. Collins Croydon Surgeon W K. Chalmers, R.N, Messrs G Cornwall and Sons, Aberdeen Mr G Cooper, Folkestone Cafolin Co Lond. Central London Throat, &c. Hospital, Secretary of Colonel James Cantlie R.A.M.C (T); Lieutenant-Colonel W Collier R.A.M C (T)

D —Mr E A. Demuys, Lond. Messrs W Dawson and Sons Lond. Dr A. F Dixon, Dublin; Captain W B Davy R.A M C Dr Vincent Dickinson, Lond. Dr H. A Des Vœux Grantown on Spey Dr W Dunn

E.—Captain M D Eder R A.M.C Messrs Evans and Witt Lond. Erasmic Co Warrington.

F —Lieutenant G B Ferguson R A.M C; Factories Chief Inspector of Messrs Fannin and Co Dublin

G —Mr Kenneth Goadby Lond. Dr Norman Gray, Newmarket Gas Light Improvement Co Lond. Dr C D Green, Romford Surgeon P C Gibson R.N Mrs. Gurney Ingham.

H.—Mr Paul B Hoeber New York Hospital for Sick Children Lond. Acting Secretary of Professor D Fraser Harris Major H Harding Mr S E Harron Lond Messrs J Heywood Manchester Captain N H Hume I M S Messrs. John Haddon and Co Lond. Dr A. C Houston, Lond Sister M C Harris, North Evington Hare Pharmacy Calcutta Manager of Mr W Hird Sompting

I.—Isle of Man Lunatic Asylum Douglas Med. Superintendent of

J —Dr F Wood Jones Ventnor Messrs S Jones and Co Lond Mr H. Jefferies, Eton *Journal of the Royal Army Medical Corps* Lond. Editor of Colonel D Johnstone

K.—Mr H Kimpton, Lond. Messrs H S King and Co Lond.; Mr H Knevitt, Lond. Messrs G Kelly and Co Lond. *Kentish Gazette* Canterbury, Dr A. Beresford Kingsford Lond. Mr C Kenwick Edgbaston.

L.—Mrs E J Low Easthaven Messrs. Longmans, Green and Co., Lond.; Leeds Public Dispensary Secretary of Messrs H. K. Lewis and Co, Lond Messrs E and S Livingstone, Edinburgh Local Government Board, Lond., Secretary of Miss Alice W Loviett, Port Chester N Y Messrs Lee and Nightingale Liverpool

M.—Mr J A. Manton Sheffield Dr Irwin Moore Lond. Messrs. J Menzies and Co Glasgow Dr J N Matthews Manchester Dr K. V Govinda Menon, Tellicherry Medical Defence Union Lond., General Secretary of Dr J W S Macfie Accra Surgeon A. E Malone, R N Mr Rutherford Morison Newcastle-on Tyne Surgeon General Sir G H Makins, K C M G C B.; Dr Flora Murray Lond Mr W Martindale Lond. Dr John MacKeith Lond. Captain J C McWalter R.A.M.C; Mr C MacMahon, Lond. Dr J McGregor Bridgend Mr Humphrey Milford Lond.

N —Dr David Nabarro Lond.; National League for Medical Freedom Chicago Secretary of Sir T B Narlman Bombay Nottingham Corporation Medical Officer of Health of

O —Mr R Orde Newcastle-on Tyne Sir William Osler Bart, Oxford

P —Mr Joseph F Peart, Lond. Captain John Proctor R.A.M C Messrs Parke, Davis and Co., Lond. Messrs Perrier Lond

R.—Mr E. G Renny Colchester; Reuter s Telegram Co., Lond Royal College of Surgeons of Edinburgh Librarian of R. C Royal Army Medical College Lond. Librarian of Messrs Robertson and Scott, Edinburgh Rochester and Chatham Printing Co Rochester Royal Colonial Institute Lond. Secretary of Dr Harold Rischbieth Adelaide Major J A. Rigby, R A.M C Royal Infirmary, Glasgow Acting Superintendent of Dr Clive Riviere, Lond. Rhondda Urban District Council, Pentre, Medical Officer of Health of Lieutenant-Colonel George Ranking

S —Mr E A. Shirvell Padstow; Mr B Sutton Lond. Messrs. W H Smith and Son, Reading Sheffield University Registrar of Mr A. N Sen, Kandi Stone Preservation Co Lond. Sunderland Rural District Council Clerk to the Sunderland Royal Infirmary Secretary of, Messrs W H Smith and Son, Ferryhill Fleet-Surgeon E C Sawdy R.N Capt. E G Sworder R.A.M.C Society of Apothecaries of London Secretary of; Captain C F Strange R.A.M C Dr Douglas H Stewart, New York Mr John J Stanton, Cork Mrs Charles Singer Oxford Dr Raymond Shaw Great Yarmouth Mr J C Sagrue, Geneva Mr W E Sargant Lond. Dr B Newlyn Smith Tintagel Messrs. Spiers and Pond Lond.

T —Dr Albert E Tebb Lond. Mr Charles E Tripp, Amsterdam Dr R. S Trevor Lond. Trust and Deposit Company of Onondaga, Syracuse, U.S A. Trust Officer of

V —Dr B Randall Vickers Hong Kong

W —Dr G T Western Lond., Dr F J Waldo Lond. West London Hospital Post graduate College Dean of Dr J Darley Wynne, St. Faith s Messrs W J Wilcox and Co., Lond. Dr J Smith Whitaker Lond. Dr E W Ainley Walker Oxford; Dr Arthur C Wilson, Formby; Mr R L. Wason Yeovil Messrs. Jas Willing Lond. *Western Medical Times* Reno Nevada, Editor of Captain H. M Wilson.

Z —Dr Theodore Zangger Zürich.

Letters, each with enclosure, are also acknowledged from—

A.—Dr T Dyke Acland Lond. Captain G K. Aubrey R.A.M.C., Mr J P Atkinson jun., Saffron Walden

B —Messrs W H. Bailey and Son Lond.; Madame de Bas, Lond. Messrs. Buchart and Rennet, Aberdeen, Dr W F Blyth Lond.

C —Dr C. L Corbett, Manchester; Messrs Callard, Stewart and Watt, Lond. C W J B C W F

D —Dr W Donaldson Flotta; Duff House, Banff Secretary of; Mr T Dixon Lond Devonshire Hospital Buxton Secretary of Mr Courtenay Dunn Torquay Dorland Agency Lond.

E.—Miss Edis Lond Lieutenant-Colonel J S Elliott, N Z.M.C Captain T P Edwards R.A.M.C

F —Mrs M C Forrester Cambus Captain C Farranridge R A.M.C

G —Mr G F Gaillard Nottingham Mr A. T Girdler Lond

H.—Dr T E Harwood Lond. Mr P Harper Lond. Captain H L P Hulbert R A.M C Captain J F Hill, R A.M.C Hornsey Borough Lond. Accountant to the H S Captain A. G P Hardwick, R.A.M.C Dr R. J Huston, Kobe Harvard Medical School of China Shanghai Haymills Ltd. Lond.

I —Mrs Irvine St. Leonards-on Sea Invernith Sanatorium Colinsburgh Secretary of Incorporated Society of Trained Masseuses Lond. Secretary of

J —Staff Surgeon H C Trevor Jones J C L Mr J Jewell Lond Colonel Duncan Johnstone.

K.—Captain J L Kerr A.A.M C Messrs Keith and Co Edinburgh

L —Captain C Lundie, R.A.M.C Captain C L Lakin R.A.M.C Dr J N Langley Cambridge Dr L. E. Lynn Lewis Blaenau Festiniog Lord Mayor Treloar's Hospital Lond. Secretary of; Dr J Love, Queenstown Tasmania Lord Derby War Hospital, Warrington, Clerk to the Mr M. E A. Latif, Salisbury, Professor J A. Lindsay, Belfast, Dr T H. Livingstone Newcastle-on Tyne.

M —Mr H. Messenger Saltburn by the-Sea Messrs. J Menzies and Co Edinburgh; Messrs. C Mitchell and Co., Lond.; Dr A. D MacMahon, Sunderland Captain A. V Mechan, A.A.M C; Messrs Mather and Crowther Lond

N —Northumberland House Lond. Medical Superintendent of

P —Mr A. J Pelton Tunbridge Wells Mr F G Pulman Lond.; Messrs Pulman and Sons Lond., Dr L C A. Pinho, Bahia Mrs Paterson Jersey Mrs Parr Swanage

R.—Dr M J Ryan Crumlin; R F O B L.

S —South Devon and East Cornwall Hospital, Plymouth Secretary of; Mr F O Startin Lond. Mr E W Scripture, Lond., Messrs W H. Smith and Son, Lond Dr W R. Sibley Lond. Captain W Steinberg R.A.M.C. Dr Lucy Smith Cork Mr M Stewart Carlisle.

T —Dr D M Taylor Halifax Messrs Thacker and Co Lond.; Mr W A. F Twemlow Flint.

V —Vankaner India, Chief Medical Officer of

W —Mr B. Williams Corwen Mr C Worth Lond.; Woolwich Borough, Treasurer to the

Y —Mrs Yourell, Kingstown.

Some Practical Observations on the INJURIES OF WAR

By A. MARMADUKE SHEILD, M.B. CANTAB., F.R.C.S. ENG.,

CONSULTING SURGEON TO ST. GEORGE'S HOSPITAL AND TO THE ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN; TEMPORARY SURGEON TO NO. 5 WARD, HOSPITAL, EXETER.

(Continued from p. 954.)

LODGMENT OF MISSILES

WHEN the missile has lodged it must be located by the X rays. And this should be done in all cases where there is no wound of exit, unless the evidence of removal by operation is clear. A small superficial wound may really be a penetrating one and a foreign body easily overlooked. Much has been written on the question of operating on these cases and as they widely differ only general principles can be mentioned.

As a rule, when the bullet or piece of metal is causing no inconvenience and deeply seated, as in the buttock, or near the neck of the femur it had best be left alone. The same rule is wise when the missile is in the retroperitoneal tissue or mediastinum. This practice is very unpopular with the patients who have vague ideas they are being "poisoned" by the bullet, and are deprived of the legitimate pride of showing it to visitors or relatives. Deeply seated bullets are easily missed by the operator. I have been generally successful in these cases but must confess to some most annoying failures where, though I was certain I was close to the piece of metal, I could not find it, even after a prolonged and extensive search. Where the operator is uncertain whether he is touching bone or bullet, the telephone probe is very useful. If the missile be associated with compound fracture, it should always be removed if possible but this is not easy and I have been defeated in several such cases in completing my purpose.

The size of the missile has always to be considered. Where one would remove a large jagged piece of shell a small scale of metal may be left alone. Again, a deep and risky operation may be undertaken when a bullet is pressing upon a main nerve, or is in the cavity of a joint. The larger the piece of metal the more certainly it can be found in a deep operation. Small bullets may be most difficult to detect.

In wounds of the face pieces of metal, even of large size may unsuspectedly lodge in the antrum, the nares, or the various fossæ, and their existence should always be suspected unless negatived by a skiagram. The lodgment of bullets in bone especially when near a joint and associated with splintering usually necessitates removal. But all these cases afford very diverse problems and I believe I only voice the opinions of many that deeply seated bullets and small pieces of metal are best left alone unless there are distinct indications for removal and the deeper the missile is lodged the greater the difficulty the surgeon may find in extraction. When bullets or pieces of shell are superficially situated they can be easily removed and the same is true when they can be felt with a probe or examining finger at the bottom of the wound of entry. When bullets are lodged in the carpus or tarsus they are usually associated with shattering of the bones and it is wise to remove them, along with all the splinters and fragments of bone which can be detected. The subsequent healing of these wounds is most tedious and the results often unsatisfactory.

GUNSHOT WOUNDS OF THE JOINTS

The gravity of these injuries is in proportion to the size of the articulation involved and the amount of damage done to the bones and soft parts. In these cases septic arthritis of a very severe nature ensues, burrowing abscess soon occurs, and, especially in the case of the ankle or knee gangrene is apt to ensue. Conservative surgery may be pushed to extremes in the upper extremity and primary excision of the shoulder and elbow with very free drainage and flushing gives good ultimate results, often indeed, exceedingly good results. Mobility of the parts is always aimed at in the joints of the upper extremity. In the case of the knee, if the articular surfaces are shattered, bony ankylosis in a good position should be aimed at. A stiff, straight knee is surprisingly useful, but a bent joint is the reverse. In a shattered knee, if it be determined to save the limb all fragments of bone, cartilage, and cloth should be removed, and large tubes inserted into the synovial pouches especially into the inner pouch, beneath the vastus. Very free and thorough flushing should be carried out. The limb if possible, should be slung and the flushing maintained daily without moving it from the supporting splint. The pain is always very severe and this is one of the few instances in which I advocate an occasional injection of morphia and atropine. These cases are difficult to manage, and the patient is often clamorous for amputation, but in a young and vigorous subject ankylosis will almost always ensue if the surgeon persists in his conservative efforts. In the case of the shoulder very extensive resections can be done and yet a useful limb ensue. In a recent case the head of the humerus and parts of the clavicle and scapula were removed with excellent ultimate results. In bullet wounds of the hip, or joints of the pelvis, especially the sacro iliac joint, I have found great difficulties. It is here very difficult to remove all the shattered bone, and necrosis of the edges of the large portions left is very apt to ensue, and cause subsequent troublesome discharging sinuses. The original wounds may be enlarged and all loose fragments removed with very free drainage, and any subsequent abscess evacuated. In the long convalescence, exposure of the patient to continuous sun and air with a full diet, is very important. Most of these cases get well in the end, but 'the end' is often far off.

In bullet wounds of the tarsus the subsequent healing is very tedious and troublesome a sinus through the foot obstinately persisting. The bones become affected with chronic osteitis, and a solid œdema with matted tendons and impaired movement persists. In some of these cases I believe, a well executed, subastragaloid amputation would give in the end better results than an attempt to preserve a swollen and deformed foot upon which subsequent locomotion is painful and distressing.

SECONDARY HÆMORRHAGE

In the septic and sloughing wounds of the present war this most troublesome and difficult complication is only too frequent. I believe I have seen more of these cases in recent practice than in all my past hospital experience in London. Secondary bleeding in septic amputations is always to be feared and I think it is fostered by the practice of uniting the flaps at the time of operation. It is far wiser to leave the stump "open" for the first two or three days packing the cavity with saline-soaked dressings. When the surfaces seem healthy chloroform can be given and the sutures previously inserted, tightened and the parts drawn together. I can look back upon at least two cases where bad results occurred through my mistaken policy in attempting too early union of the flaps. Should the main vessel give way and the bleeding be fortunately controlled in time by the elastic band it is better to tie the vessel some inches higher up than attempt again to secure its sloughy end. When secondary hæmorrhage occurs from deep septic wounds the parts must be laid open and the danger faced. Plugging pressure and styptics are only temporary expedients, and they seldom succeed and make subsequent operation more difficult. When the parts are exposed and flushed with hot water the bleeding will often cease. But if the surgeon can detect a definite source he may try to control it. The parts are so disintegrated, the ligature will seldom hold when applied in the usual way, and an excellent device is to take a curved needle and pass it under the tissues across the course of the vessel, and tie a silk ligature firmly including some of the soft parts. Forcipressure is also very useful and some curved and T shaped pressure forceps should be in every operating case. These should be applied and left on for four days, and their use will often stop a deeply seated difficult hæmorrhage when nothing else will do it. Acupressure may also be sometimes useful.

In exceptional cases the main vessel above may be tied. Thus, in a case of profuse secondary hæmorrhage from a sloughing bullet wound through the wrist where the hand

was enormously swollen, I tied the brachial artery The hæmorrhage lessened and ceased, and the operation markedly relieved the swelling and pain in the hand Amputation would have been the only other resource It was an ancient practice to tie the brachial in severe inflammatory conditions of the hand, and I am not sure that the practice is sufficiently resorted to

A more rare cause of secondary hæmorrhage is the erosion of an artery from pulsating against a "spike" of carious bone This is apt to occur in the popliteal space In a case of fracture of the femur in its lower third, which had been dealt with at the Cambridge Hospital, the patient was admitted at Exeter with persistent bleeding from a small sinus near the knee, the hæmorrhage occurring in occasional repeated "bursts" The condition of the parts justified amputation The fracture was united, but a small hole was found in the popliteal artery, where it impinged upon a projection of carious bone

EMBOLISM

Considering the lacerated veins and the soft septic clots in them in, let us say, a bad gunshot fracture, it is astonishing how infrequently embolism occurs I have seen several very instructive cases of pulmonary embolism—not the extensive embolism of the main vessel leading to death, but small embolism leading to a sudden and acute localised pneumonia. The ordinary signs of consolidation were present, with pleuritic friction, and the symptoms were acute with high intermittent temperature and profuse sweating The symptoms were very similar to acute tuberculosis, for which, when the trouble is in the apex of the lung, the condition is apt to be mistaken So far as I was able to ascertain, the expectoration was purulent, and had not the well known "rusty" or prune juice appearance Dr R V Solly found no tubercle bacilli, but abundant streptococci, in the sputa. The cases all did well, after being acutely ill for some days I have had no case of "secondary" empyema, though primary cases have been treated, after direct wound of the thorax. Neither have I seen any cases of cerebral embolism after injuries of the vessels in the neck.

PERFORATIONS OF BONE BY BULLETS

A number of these cases have come under notice, especially in the tibia or humerus Some splintering of bone in the vicinity of the track of the missile is usual, and necrosis along the channel is a common after result Sound healing is very tedious, and in one case, where the tibia had to be perforated by the trephine to remove a bullet impacted at the back of the bone, took over four months When once all dead bone has been removed, fibrosis of granulation tissue will ensue, and a dense sclerosis of bone round the injured part maintains the integrity of the shaft The only treatment so far as I know in these cases is to expose the patient to sun and air, to feed him well, and to soak the part daily in a saline bath At intervals of a month or so the cavity in the bone, for there usually is a cavity, should be curetted with a sharp spoon When no evidence of osseous disease exists strong solutions of silver nitrate should be injected on alternate days All my cases have finally recovered, but at the expense of great time and trouble and much weariness on the part of the patient.

In the "mastoid operation," which I often formerly performed, I used to dissect up a long flap and pack it down into the cavity In this way "skin covering" of the extensive cavity in the bone was certainly brought about I have adopted this method in one case of cavity in the tibia. I think, on the whole, that a better and stronger bone will result by the exercise of time and patience In former days I also tried "decalcified" sponge and filling the cavity in a bone with fresh "bone chips" But I was not impressed with the success of these methods The same may be said of the injection of liquid paraffin

TREATMENT OF SINUSES

The usual cause of an obstinate sinus is the presence of dead bone and when this is fixed and very deep, as in the pelvis only time and the use of the curette are of avail Every effort should be made to remove the cause It is commonly advised to lay all sinuses open, and when superficial and not involving important parts this practice is justifiable In deep sinuses I have found the injection of nitrate of silver (20 gr to the ounce) useful I have also used the "liquor epispasticus" A still more efficacious remedy is the electric cautery The wire should be passed to the depths of the sinus and gradually withdrawn, searing its walls But all these measures are useless if bone, pieces of metal, clothing, or an elusive drainage tube remain at the bottom. One striking case, where numerous deep sinuses in the groin and buttock had persisted for many months, was finally cured by persistent baths and the injections of the strong silver nitrate carried out by Dr Robin, of Sidmouth, who then assisted me Numerous fragments of bone were removed by the curette, and a skiagram showed destruction and disintegration of the head of the femur, with pathological displacement In this case, had a "great" operation been performed by laying open the sinuses and hip-joint I believe the emaciated and feeble youth would have succumbed This case is only alluded to shortly as an additional proof that time and patience will usually overcome conditions which may appear quite desperate, and before submitting enfeebled patients of this class to extensive and desperate operations this view of the case should always engage the attention of the surgeon Sinuses should never be probed without a reason, as to detect dead bone or estimate their depth

GUNSHOT WOUNDS AND FRACTURES OF THE FACE AND JAWS

The leading features to remember are the extraordinarily rapid union of wounds in this region and the importance of not uniting the wound in the soft parts over shattered bone and pieces of impacted metal. This is especially likely to occur in the antrum and nares The bone destruction may be terrible. In one young soldier I removed the upper jaw, half the lower jaw, the palate, part of the ethmoid and the pterygoid plates The soft parts were united over the huge gap, and the resulting deformity was far less than might have been expected. It is important to preserve the orbital plate of the maxilla, or, if this is impossible, to maintain intact the periosteum and suspensory ligament of the eyeball, or the latter gets displaced downwards In the "rush" of early cases I had to treat some bad fractures of the jaw without any special apparatus I had recourse to the old moulded splint of gutta percha and jaw bandage which I had not applied for many years All loose fragments were removed with forceps, and Mr Acland gave his aid for the loose and injured teeth The results in these cases were excellent, and an indication of what can be done with very simple measures in very difficult cases In fractures of the jaw extensive comminution is very frequent. I think it well to expose the parts by an incision along the inferior border and remove all the fragments of shattered bone This is very important, or after suppuration and obstinate sinuses are sure to persist. Pus is very apt to burrow down the neck under the cervical fascia, and I think it well to drain through the submaxillary incision In past days I have drilled and wired the bones, but I am not sure the results were better than when simply treated by a splint In these cases, however the aid and skilful appliances of the dental surgeon and mechanician are very essential, and moulded metal or wire splints very advantageous In all instances the mouth should be constantly washed out with an antiseptic lotion. Permanent facial paralysis is often found in wounds of the face, and is very unsightly When the soft parts are extensively blown away the most hideous and distressing deformities ensue What plastic surgery cannot effect must be remedied by skin coloured masks These can often be advantageously supported on a spectacle frame It is fortunate that an institution is to be opened where the patient and surgeons get the advantage of mechanical skill and appliances, which are only to be found among trained and ingenious surgical mechanicians, and they alone can cope with such cases as these

INJURIES OF THE NERVES

These are far more serious and extensive than most of us have ever experienced in civil practice The division of nerve trunks by glass wounds or accidental stabs were, as a rule satisfactorily dealt with by one of the various methods of immediate suture Bullets and pieces of shell unfortunately not only divide the nerves, but smash them and carry away entire portions In extreme cases the main nerves as the brachial plexus or the sciatic, are actually clean blown away in portions The results are very disastrous Constant pain, especially when cicatrisation occurs and

various forms of paralysis below, with serious deformities and "nutritive" changes in the joints are apt to ensue Every effort must be made by splints and manipulation to prevent these deformities But I have found this in practice very difficult to effect. In some extreme cases amputation of the deformed and crippled limb is perhaps the best treatment Immediate attempts to unite nerves in a septic wound usually fail If one waits until the parts have healed, and there is no risk of setting free fresh sepsis, one is confronted with difficulties which may be great The amount of cicatricial tissue and the matted parts make the structures indistinguishable, and when large veins are adherent in the mass, as in the axilla or popliteal space, wounds or tears in them may be inflicted by the most careful operator The most successful cases are those where a nerve is bound down by scar tissues and can be released Frequently, also the loss of nerve substance is so great that transplantation of a portion of nerve from elsewhere has to be adopted A layer of fascia dissected from the neighbourhood is I think, the best membrane to surround a divided nerve, should the surgeon be able to unite it On the whole, my experience of these cases has been distinctly unfavourable. Other surgeons may have had better results

INJURIES OF THE HEAD

I have seen a number of scalp wounds and some depressed fractures excellently treated, before they came under my notice, by the surgeons at the front The patients attributed their escape from death to the use of the metal helmet which explains the comparative slightness of many of these injuries So few cases of missiles lodged in the brain have come under notice that I do not feel justified in remarking upon them and my previous experience of such injuries has been slight But I wish to reiterate my impression of the excellence of the surgery at the front in the head cases In one instance bone had been removed and a wounded lateral sinus plugged A large granulating wound remained and cerebral pulsations could be seen at its depths This was closed by implanting flaps of scalp and the final result was very good recovery being complete.

WOUNDS OF THE THORAX

Many of these are superficial the bullet glancing off the ribs We have had several cases where the soldier has been shot clean through the thorax. The only evidence of lung trouble has been slight pain and hæmoptysis All these cases have done well under rest and cleanliness to the superficial wounds In two cases there was some hæmothorax, but this was not interfered with I have also seen cases where the bullet had entered over the cardiac area or great vessels and yet nothing untoward occurred. These cases are very extraordinary and it is difficult to explain them Primary empyema, due to direct wound has been dealt with by the usual methods and the cases though tedious have done well A masterly inactivity ' is the best policy in penetrating wounds of the thorax Septic pneumonia is always to be feared I have only seen one case hitherto

WOUNDS OF THE ABDOMEN

My experience of these injuries has been also small These serious wounds are often fatal and of necessity need immediate treatment in the base hospitals A most instructive article on these cases was published by Mr Crisp English in THE LANCET of Oct. 28th 1916 p 746 I saw one case where a bullet had entered from behind, perforated the kidney and escaped anteriorly Beyond some hæmaturia nothing untoward occurred In another remarkable case a bullet entered above the pelvis posteriorly and emerged at the inner side of the thigh Urine passed from the wound in the thigh in large quantities at first according to the report but only scantily under my own observation There were no symptoms of extravasation I laid the wound in the thigh open for some inches and inserted a large tube The patient made a good recovery I have seen no bayonet wounds These are no doubt treated at the front but I am of opinion that the Germans suffer more from these injuries than our troops

INJURIES OF THE SPINE

When the spinal cord is smashed by the missile recovery of motion is hopeless though some sensation may be found and maintained The survivors of these injuries will form a large proportion of the inmates of homes which I trust may be provided for the heroic sufferers after the war They need the customary care and nursing familiar to us in similar cases in civil life, especially in the prevention of bed sores and attention to the condition of the bowels and bladder Caution must be exercised in the prognosis of these injuries In some of them the cord is really bruised not severed The symptoms at first are very complete, and the case appears hopeless But after some weeks, when effused blood becomes absorbed, recovery begins to set in and may be well nigh perfect This has happened in several of my cases, and notably in one man who was shot through the neck. Total paraplegia existed below with diaphragmatic breathing After many months this patient was able to walk with the aid of a stick, and his complete recovery seemed only a matter of time. I have had other cases where partial recovery only occurred, but the final conditions were better than one might have anticipated from the gloomy appearance of the early symptoms It is exceedingly difficult to know whether or not to operate in these cases The operation for fracture dislocation of the spine which I have performed in past years, and which I have more often seen others perform was, to my mind usually disappointing in results, and certainly did not have the measure of success some of its enthusiastic advocates claimed A careful skiagram should always be executed, and if the appearances point to shattered bone and pressure on the cord this is an argument for operation But if the cord is smashed by the bullet, no good results can be expected. I think with the utmost care and reflection such operations must be experimental, and it is impossible to promise beforehand what amount of good they may be expected to bring about Also when the results are good it is difficult to affirm that they would not also have been as good without operation. This class of operation will always be favoured by those who regard operations as of more certain value than the reparative powers of nature. Indications of pressure on the cord are the best arguments for its adoption

An important class of injuries to the back and spine are those where the patient is crushed and bruised beneath tons of débris of timber and earth by the explosion of a mine or the devastations of a ' Jack Johnson " In these cases the patient "when dug out alive " exhibits severe nerve shock, and for weeks or months may be practically unable to move The spinal muscles are sometimes lacerated Definite hæmatoma exists or evidence in the discolouration of the skin of extensive bruising Signs of injury to the cord, as loss of motion or sensation below, are absent I have suspected in some of the worst of these cases that hæmorrhage between the membranes and the cord has really existed. In other cases the evidence of injury is not so marked The neurasthenic element is present, and the symptoms remind one of the 'railway spine" with which we were familiar in civil practice, and which provided ample material for differences of opinion amongst surgeons and were a source of emolument to practitioners of the law In these cases if rest and massage does not avail movements of the spine under anæsthesia are often of surprising efficacy The body should be strongly and repeatedly flexed and extended over firm pillows or sand bags Doubtless adhesions about the small joints and deep muscles are ruptured by these manipulations If any painful spots persist on pressure or percussion the actual cautery should be lightly applied and also has a remarkable influence for good Exercises and change of air with encouragement usually do the rest But these cases if allowed, will remain supine and helpless for an indefinite time, especially when made the objects of injudicious sympathy and provided with cigarettes novels and wool work They need mental stimulation and encouragement, as well as actual local treatment

(To be concluded)

THE LATE MR C D RUDD'S BENEFACTION —The death of Mr Charles Dunell Rudd has brought to light the fact that he was the donor of the new buildings of the Mount Vernon Hospital for Consumption and Diseases of the Chest at Northwood The total cost of this institution on its admirable site with full equipment for treatment, exceeded £200 000 and it was Mr Rudd's great wish to see the completion of an extension giving a further 120 beds for women and children This hope was not realised, as after the foundations had been laid further building was prevented by the outbreak of war

AN INVESTIGATION INTO THE AGGLUTINATING PROPERTIES OF CERTAIN SERA AGAINST *B TYPHOSUS* AND *B ENTERITIDIS* GAERTNER (DELÉPINE, 7160)

BY THOMAS T O'FARRELL, F R C S IREL, D P H,
FIRST ASSISTANT IN PATHOLOGY UNIVERSITY COLLEGE DUBLIN (N U I)
PATHOLOGIST ST VINCENT'S HOSPITAL, DUBLIN

(*From the Pathological Laboratories, University College, Dublin*)

THE present investigation was undertaken at the suggestion and under the supervision of Professor E J McWeeney, as part of the work done at the Bacteriological Department, University College, Dublin, National University of Ireland, in connexion with the scheme of the Medical Research Committee

A comparatively large number of sera was sent in to this laboratory by the Irish military authorities for the Wassermann test, and as these sera are for the most part taken from men who had received antityphoid inoculation it was thought a good opportunity of estimating their agglutinating power for *B typhosus* by Dreyer's method, and to find out whether any of them agglutinated a certain strain of Gaertner (Delépine, 7160) As a result of investigations made by Delépine and Dawson[1] with a culture of *B enteritidis* Gaertner (7160), isolated by the former, the claim is made that this bacillus 7160 is agglutinated by the serum of patients suffering from enteric fever and is unaffected by the sera of antityphoid inoculated individuals According to these authors therefore 7160 can be used as a valuable means of making a definite diagnosis of enteric fever in a febrile antityphoid inoculated person when the mere agglutination of typhoid bacilli alone cannot be relied upon To estimate fully the value of this observation it would be necessary to test the following sera for the presence or absence of agglutinins for 7160: Class A, the sera of normal non inoculated persons, Class B, the sera of inoculated, though otherwise normal persons, Class C the sera of non inoculated enteric fever patients, and Class D the sera of enteric fever patients who had been previously inoculated

The sera which were submitted to me for examination fell under Class B—namely, the sera of persons who had received antityphoid inoculation and who were at the time not suffering from enteric fever or food poisoning The only way in which the persons differed from normal healthy inoculated individuals was that they either had or were suspected of having syphilis The question as to how far the presence or absence of syphilis may be considered to affect the agglutinin content of a serum will be dealt with later on

At the beginning of the investigation it was thought sufficient to obtain information as to the date of the last inoculation, together with such clinical data as appeared important during the course of the research It was soon realised, however, that much would be gained by obtaining more complete details, such as the number of times the men had been inoculated and the existence of any previous history of enteric fever Also, in view of Tidy's contention[3] "that pyrexia or pyrexial conditions lead to the removal from the serum of agglutinins due to inoculation" the importance as to whether the men were in the secondary (frequently febrile stage) of syphilis became apparent

I have to express my thanks to the officers of the Royal Army Medical Corps at Portobello Hospital for their kindness in furnishing me with the details of the cases

Technique—The method adopted for all cases was the quantitative macroscopic agglutination test of Dreyer, which is advocated by Ainley Walker[2] and others by means of which the agglutinin content of each serum is stated as the number of standard agglutinin units per 1 c c of serum In the case of *B typhosus* a standard agglutinable culture was prepared, stored in bulk and standardised 250 c c being taken as required each 250 c c being again standardised against standard culture and antiserum kindly provided by Dr Gardner of the Standards Laboratory Oxford The positive results obtained with the sera against the standard typhoid culture are stated as standard agglutinin units per 1 c.c of serum examined.

In the case of B Gaertner (7160) a culture was used which had been kindly forwarded by Professor Delépine to Professor McWeeney From this a uniformly agglutinable formalinised culture was made This could not, however, be standardised in the same manner as in the case of *B typhosus* owing to the lack of a standard specific antiserum, so that the results in the case of this micro-organism are expressed as the highest dilution of serum with which agglutination was obtained This culture was found to give uniform results with positive and negative cases, the positive agglutinations exhibiting the same naked eye clumping as the Oxford standard agglutinable typhoid cultures did with antityphoid serum This formalinised 7160 culture was not affected by the Oxford standard antisera for *B typhosus*, *B paratyphosus A* and *B*, when put up in the dilutions recommended for standardisation of cultures

In dealing with a comparatively large number of sera at a time it was found advisable to modify the details of the original Oxford method to some extent, though its general scheme was followed throughout

The primary 1 in 10 dilution of serum was made with calibrated pipettes, the drop method being used for the subsequent dilutions The saline solution for making the further dilutions of serum was kept in a double-controlled burette This was made by attaching the dropping pipette to a separating funnel (with tap) by means of a short length of rubber tubing, a screw clip being fixed in this connexion The whole apparatus was fixed in an ordinary burette stand with one holder for the funnel and another to steady the dropping pipette A double control was thus maintained—viz (1) the glass funnel tap for the main flow of saline, and (2) the screw clip for regulating the drops

In practice the advantages of this reservoir dropper can be set down as follows—(*a*) The dropping pipette is kept vertical and delivers uniform drops at a uniform rate (*b*) It is easy to manipulate, as many racks full of agglutination tubes can be filled as required by moving each tube in turn beneath the dropper (*c*) If at any time it is found necessary to stop the flow of saline the funnel tap can be turned off without disturbing the screw clip, which regulates the size of the drop (*d*) The dropping pipette can be readily detached and used for adding the serum so that the same dropping pipette is used throughout the experiment

It was also found that the original zinc racks provided with the Oxford outfit (though extremely useful) take up a large amount of space in a water bath, and if there be much variation in the size of the agglutinating tubes used the mixtures of saline, serum, and culture though of the same volume, will stand higher in some tubes than in others, and thus may be partly above the level of the water in the bath To obviate these two drawbacks a sheet of strong cork half an inch thick was perforated with holes half an inch apart, to hold 15 to 20 rows of five tubes The tubes are pushed through the cork as far as their rims, and when the whole rack is placed in water it floats, with the important part of the tubes submerged, the cork rack taking up much less space than would be required by the requisite number of zinc racks Index numbers can be readily marked with a grease pencil on the cork, if it be first rubbed over with a little xylol

The water bath was kept at 52° C for two hours, and the results read off by artificial light

It may be here noted that by Dreyer's method the variations in the intensity of the agglutination are very striking at different stages of dilution between the strongest positive reaction and a negative On several occasions zone phenomena were observed—viz with some sera no agglutination occurred in the 1 in 25 dilution, when marked clumping was present in the 1 in 50 or over

Material for examination—The sera were not particularly selected each batch being dealt with in a routine fashion as they were received Consequently, in drawing up the results the sera have to be grouped under various heads The number of specimens of serum examined was 495 With regard to antityphoid inoculation, they may be divided into the following groups—

Group I	—Sera of men about whom definite information as to number of inoculations and date of last inoculation was obtained	143
Group II	—Sera of men about whom information as to date of last inoculation only was obtainable	127
Group III	—Sera of men known to be non inoculated	32
Group IV	—Sera of men about whom no information as to inoculation was obtainable	64
Group V	—Repeated examination of sera which had already been examined previously	129

Results —It is proposed to deal with the results obtained in the following order

I. *Agglutination results with* B typhosus —A General results (inoculated cases, Groups I and II) B Factors which influence the standard agglutinin content of the sera of inoculated individuals (Groups I and II.) C Influence of syphilitic lesions upon the typhoid agglutinating power of the sera of antityphoid inoculated men (Groups I and II.) D Remarks on the sera of inoculated cases, examined more than once for agglutinins against *B typhosus* (Groups I and II) E Results with cases known to have not been inoculated (Group III)

II. *Agglutination results obtained with* B enteritidis *of Gaertner (Delépine 7160)* —A Sera of antityphoid inoculated individuals (Groups I and II) B Influence of antityphoid inoculation on the agglutinating power of sera for bacillus 7160, Delépine (Groups I. and II) C Influence of syphilis on the agglutinating power of sera of antityphoid inoculated individuals for Delépine 7160 (Groups I and II) D Remarks on sera (of inoculated cases) examined more than once for agglutinins against Delépine, 7160 (Groups I and II) E Results with cases definitely known to have been un inoculated (Group III.) F Results with sera of cases about whom information as to inoculation was not obtainable (Group IV) and total results with 7160 (Groups I, II., III., and IV)

III. *General results with cases which had a previous history of typhoid fever* (which occurred among Groups I., II, and III)

IV *Summary*

I AGGLUTINATION RESULTS WITH B TYPHOSUS

A. *General Results (Inoculated Cases Groups I and II)*

Total number of sera of inoculated cases examined, 270 These may be divided into two groups—viz —

Group I The sera of men about whom definite information as to number of inoculations and date of last inoculation was obtainable 143

Group II The sera of men about whom information as to date of last inoculation only was obtainable 127

Note —In the above cases the length of time which had elapsed between the date of inoculation and the date of examination was from one month to eight years

General results Group I —Number of sera 143 of which 125 (87 5 per cent) gave agglutination for *B typhosus*, and 18 (12 5 per cent) gave no agglutination

Group II —Number of sera 127 of which 112 (88 2 per cent) gave agglutination for *B typhosus* and 15 (11 8 per cent) gave no agglutination

When the general results of these two groups are combined —Total number of sera of inoculated cases 270 of these 237 (87 1 per cent) gave agglutination with *B typhosus* and 33 (12 9 per cent) gave no agglutination

Results in Positive Cases Group I

No of cases	Contained up to—	Per cent of total	No of cases	Contained up to—	Per cent of total
77	25 a u	53 9	1	225 a u	0 7
25	50 ,,	17 5	1	450 ,,	0 7
10	75 ,,	7 0	1	500 ,,	0 7
5	100 ,,	3 5	1	550	0 7
2	175 ,,	1 4	1	900 ,,	0 7
1	200 ,,	0 7			
		Group II			
33	25 a u	26 0	2	250 a u	1 6
34	50 ,,	26 7	2	275 ,,	1 6
16	75 ,,	12 6	3	300 ,	2 3
3	100 ,,	2 3	1	550	0 8
4	125 ,	3 2	1	575 ,	0 8
5	150 ,,	4 0	1	725 ,,	0 8
3	200 ,,	2 3	1	900 ,	0 8
1	225 ,,	0 8	2	1000 ,,	1 6
		Groups I and II			
110	25 a u	40 7	2	275 a u	0 7
59	50 ,	21 8	3	300 ,	1 1
26	75 ,	9 7	1	450 ,	0 3
8	100 ,,	3·0	1	500 ,	0 3
4	125 ,	1 4	2	550 ,,	0·7
5	150 ,,	1 8	1	575 ,,	0 3
2	175 ,,	0·7	1	725 ,,	0·3
4	200 ,,	1 5	2	900 ,	0·7
2	225 ,,	0 7	2	1000 ,	0 7
2	250	0 7			

a.u = Agglutination units per 1 c c

B *Factors which Influence the Standard Agglutinin Content of the Sera of Inoculated Individuals*

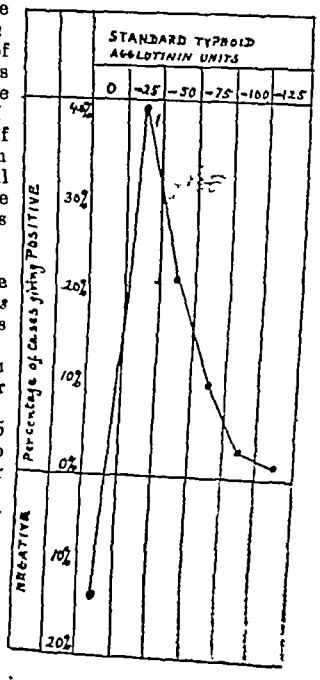
It has been abundantly proved by numerous workers, one of the most recent being Dakeyne,[3] that two factors influence the presence of agglutinins in the blood of inoculated individuals—namely, (1) the time elapsed between date of inoculation and date of examination of blood, and (2) the number of inoculations the person has received Generally speaking, the more recently men have been inoculated the stronger will be the agglutinating power of their serum for *B typhosus*, also fewer sera will be met with which may fail to agglutinate this bacillus In addition, men who have been inoculated twice have a much greater chance of developing and retaining a reaction than those who have been inoculated once

The majority of these results have been obtained by the microscopical method of performing Widal's reaction, and, as is pointed out by Dreyer and Ainley Walker,[2] the results obtained by different workers are not strictly comparable, as cultures of different strains of the same organisms are well known to vary in their agglutinability Furthermore a more or less variable standard of the actual strength of a given serum has to be adopted, such as strong reaction, moderate reaction &c, with certain dilutions of serum All workers will agree as to whether a serum gives a positive or negative reaction, and the majority will agree as to the difference between a strong and a weak reaction, but in gauging the finer differences between these two the personal element, together with the varying conditions under which different experiments may be carried out, render the results obtained by different workers not strictly comparable On this account more stress has necessarily been laid upon the percentage of negatives obtained in one series of cases as compared with another, rather than a comparison of the degree of agglutinating power obtained with various positive sera

By Dreyer's macroscopic standard method results can be uniformly recorded, and it has the distinct advantage that, in addition to being able to state that a case is positive or negative it enables one to give an exact estimate as to the strength of a given serum in standard units In addition, it is possible to estimate accurately the effect of time and the effect of the number of inoculations, on the serum of inoculated individuals which give a positive Widal's reaction

Influence of number of doses of antityphoid vaccine on agglutinin content of sera of inoculated men —Firstly it is necessary to determine what is the average agglutinin content of the sera of inoculated persons This can be studied from the totals obtained in Groups I and II total number of inoculated cases 270 On reference to Chart 1 it will be seen that the average percentage of negatives is 12 9 per cent of the total The remaining 87 1 per cent sera which gave positive agglutination for *B typhosus* may be divided up as follows —40 7 per cent gave up to 25 agglutinin units per 1 c c, 21 8 per cent gave up to 50 units 9 7 per cent gave up to 75 units, 3 0 per cent gave up to 100 units, and 1 4 per cent gave up to 125 units After this comparatively few sera gave higher agglutinin units

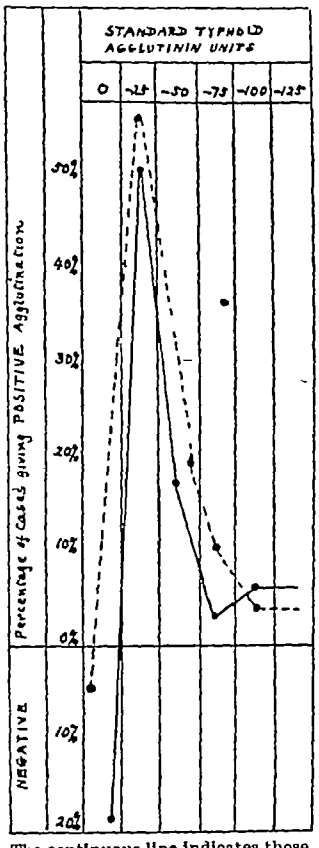
CHART 1



From this it will be seen that the greater number of sera giving positive agglutination gave only up to 25 agglutinin units, after this the percentage of those giving more units drops rapidly until it is found that sera containing more than 125 agglutinin units form but a small percentage of cases.

Having determined the average agglutinin content of the sera of 270 inoculated persons, we can analyse the average agglutinin content of the sera of persons inoculated once and those inoculated twice This can be done from an analysis of Group I Total number of sera Group I, 143, sera of those who had been inoculated once, 43, sera of those who had been inoculated twice, 70 On reference to Chart 2 it will be seen that (1) The sera of those inoculated once gave a higher percentage of negatives, 20 9 per cent., than those inoculated twice, 4 2 per cent, (2) cases inoculated twice form a higher percentage of cases giving 25 agglutinin units (viz, 55 8 per cent) than those inoculated once (51 2 per cent), (3) although the total percentage of cases giving 50 to 75 agglutinin units becomes small in each case the balance is in favour of those twice inoculated—namely, 18 6 per cent and 10 0 per cent in those twice inoculated, as compared with 16 3 per cent and 2 3 per cent in those inoculated only once After this the number of sera giving higher numbers of agglutinin units becomes so small that a comparison cannot be drawn, but generally there appears to be not much difference between the sera of those once or twice inoculated

CHART 2

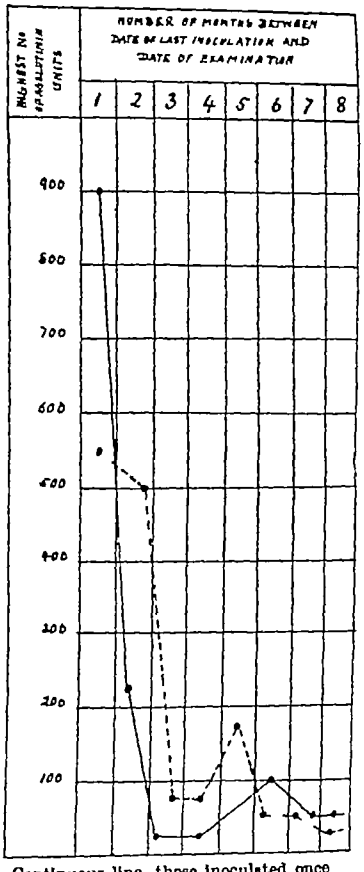


The continuous line indicates those inoculated once the interrupted line those inoculated twice

Note—One case in Chart 3 has been omitted This man was stated to have been inoculated 11 months prior to the time the serum was examined His serum contained a very unusual number of agglutinin units—viz, 714 It is probable that some error arose in noting the date of inoculation

How is the maximum number of agglutinin units per month, since inoculation was received, affected by the number of inoculations the person has received? An analysis of the sera examined under Group I has been made and set down on Chart 4 Group I, inoculated cases, 143 Sera of those who have been inoculated once, 43, inoculated twice, 70 This chart seems to bear the following interpretation In the second, third, fourth and fifth months after inoculation the serum of those inoculated twice is richer in agglutinins than the serum of those who have been only once inoculated This would probably be also the case during the first month, but unfortunately the number of sera received from men so recently inoculated was very small After the fifth month there is but little difference noticeable between the cases which had received one or two inoculations

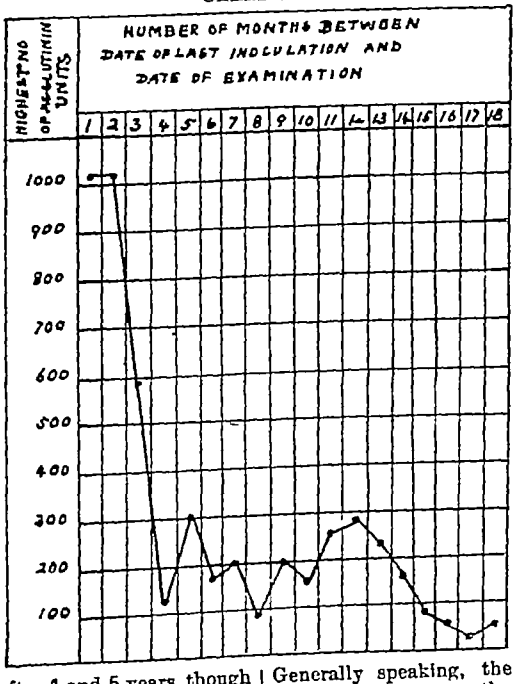
CHART 4



Continuous line those inoculated once interrupted line, those inoculated twice

Influence of number of inoculations and lapse of time on agglutinin content of sera—The influence of lapse of time can be ascertained by comparing the sera showing the highest titre, stated in terms of agglutinin units, obtained in the various months which have elapsed since the administration of antityphoid inoculation In the first place it is necessary to determine what are the highest titres obtained in the sera of inoculated individuals taken as a whole This may be studied from the total figures of Groups I and II Total number of inoculated cases 270 On reference to Chart 3 it will be seen that at 1 to 2 months the highest number of agglutinin units obtained was 1000 From this maximum they drop suddenly at the third month to 575, and then with another sudden drop at the fourth month to between 300 and 100, where they remain up to the fourteenth month After this they are generally found below 100 till they disappear from the serum altogether As to when agglutinin units do disappear it would be difficult to say from the cases in this investigation but in certain cases up to 50 agglutinin units were found after 3 years 25 after 4 and 5 years, though none were present in one case after 8 years since antityphoid inoculation had been received

CHART 3



With regard to the cases which have been inoculated three or more times, the figures are too small for comparison They comprised the following Inoculated three times 20, inoculated four, five or six times 10 (See Table I)

Conclusions as to effect of time and number of inoculations received on agglutinin unit content of sera of inoculated cases—During the first month after inoculation the maximum number of agglutinin units are obtainable The highest number of units falls rapidly after the second and during the third month Between the fifth to the fourteenth month fairly high agglutinin unit content may be met with—viz, between 100 and 300 After 15 months the agglutinin units do not rise above 100 The sera of men inoculated twice give fewer negatives and more positive reactions, more cases give 25, 50, and 100 agglutinin units Higher titres are obtained during the second third fourth and fifth months after inoculation Generally speaking, the sera of these twice inoculated are stronger during the second, third fourth and fifth months, and the results are more lasting in those twice

than those only once inoculated Therefore so far as the presence of agglutinins can be regarded as an index of a person's resistance against typhoid fever, a man twice inoculated shows strong immunisation up to the fifth month

TABLE I —*Group I Cases Inoculated Three, Four, Five, and Six Times*

Months between date of inoculation and date of examination	Number of sera examined	Agglutinin units -0	-25	-50	-75	Months between date of inoculation and date of examination	Number of sera examined	Agglutinin units -0	-25	-50	-75	-100
	Inoculated 3 times						Inoculated 4 times					
2	1		..	1	..	3	1	1	..			
..	2		1	1		5	1		1		...	
5	1		1		..	7	2	..	2	...		...
6	1	..	1		..	8	1	1		..	..	
7	1				1		Inoculated 5 times					
9	3		3	..	..	1	1					1
10	2	1	1			8	2		2			
11	3	1	1	1	..	13	1	..	1	...		
13	1		1	...			Inoculated 6 times					
20	1		1			18	1		...	1		
21	2			1	1	Totals..	10	2	6	1		1
2 years	1	1		..	..	Grand total for cases inoculated 3 4 5 and 6 times						
3 years.	1	1					30	6	16	5	2	1
Total ..	20	..	10	4	2	Per cent		20 0	53 3	16·6	6 7	3 ..

after the last inoculation and is in a better position to withstand infection up to 14 months than a person only once inoculated.

C *Influence of Syphilitic Lesions upon the Typhoid-agglutinating Power of the Sera of Antityphoid-inoculated Men*

In view of Tidy's contention[3] 'that pyrexia or pyrexial conditions lead to the removal from the serum of agglutinins due to inoculation,' the following arrangements of the results obtained with the sera of antityphoid inoculated men in relation to the clinical condition, and the presence or absence of a positive Wassermann test may prove of interest. Professor McWeeney has kindly provided me with the clinical data and the results of the Wassermann test carried out by him. To make a fair analysis it is proposed to eliminate 42 sera from the total 270 (Groups I and II), so as to deal only with 228 which gave either a distinct + 3 or + 4 Wassermann or a distinct negative and to include only those cases about which full information as to the stage of the syphilitic lesion (primary or secondary) was available

Total number of sera of antityphoid inoculated men who either had or were suspected of having syphilis 228 These may be divided into two sections (Table II) —Those which gave a positive Wassermann, 105 (Section I), and those which gave a negative reaction 123 (Section II)

TABLE II.

Section I Positive Wassermann				*Section II Negative Wassermann*			
Lesions	No of cases	Positive for *B typhosus*	Negative for *B typhosus*	Lesions	No of cases	Positive for *B typhosus*	Negative for *B typhosus*
Primary	59	50(84·7%)	9(15·3%)	Suspected primary	100	90(90·0%)	10(10·0%)
Secondary	46	44(95·6%)	2(4·4%)	Suspected secondary	23	19(82·6%)	4(17·4%)
Totals	105	94(89·4%)	11(10·6%)	Totals	123	109(88·6%)	14(11·4%)

General results.—From the foregoing it will be seen that the presence of a positive Wassermann does not influence the agglutinating power of the serum of inoculated individuals, 89 4 per cent. of those giving a positive Wassermann reaction and 88·6 per cent of those giving a negative Wassermann reaction agglutinating *B typhosus* Further although the number of sera is small for statistical purposes it will be noticed that the sera of patients with secondary syphilitic lesions (which are occasionally accompanied by some rise in temperature) appear to agglutinate typhoid in a higher proportion (95·6 per cent) than the sera of those cases suffering from primary lesions (84 7 per cent)

D *Sera Examined More than Once for Standard Typhoid Agglutinin Units (Groups I and II)*

To judge properly the observations made on the sera examined more than once it is necessary to refer to the paper by Dreyer Ainley Walker, and Gibson[4] in order to form an idea as to what variations in titre may be expected in the sera of typhoid fever patients According to these writers, the main curve in the course of agglutination in a case of typhoid fever is indistinguishable in form from the curve obtained by experimental inoculation with antityphoid vaccine, though its *maximum* is *lower* and its *decline* more *rapid* than is the case in the inoculated subject In a chart they plot a curve of the agglutination titre for *B typhosus* from the time agglutinins appear in the serum in an actual case of typhoid fever The curve is represented as the highest dilutions of serum with which agglutination was obtainable For the sake of comparison we may provisionally take these dilutions as giving standard agglutination and take the factor 5 0 as representing the factor for the standard culture In this manner, analysing the chart we get —

During the first 14 days the agglutinins rapidly rise from 0 to 1 in 1250 = units 250

During the following—
8 days the agglutinins rapidly fall to 1 in 500 = units 110
24 days the agglutinins gradually fall to 1 in 150 = units 20
20 days the agglutinins very gradually fall to 1 in 75 = units 15

Therefore, in the first two weeks the agglutinins rise quickly to a maximum of 250 units, in the subsequent week they drop by 140 units and during the three weeks following this they drop by 90 units Thus, in a period of six weeks the agglutinin units undergo violent fluctuation

The results obtained with the sera of inoculated individuals (not suffering from active typhoid fever) in the present investigation are set down in Tables III IV, V and VI Number of sera of inoculated cases examined more than once 75 They may be divided up as follows Sera which gave (1) steady negatives 9, (2) steady positive titres, 11 (Table III.), (3) a rising titre, 16 (Table IV), (4) a falling titre 26 (Table V), and (5) a certain amount of fluctuation, 13 (Table VI) To describe these in detail —

1. Sera which gave a steady negative 9, each of these was examined twice and one three times, a negative being obtained each time.

2 Sera which gave a steady positive titre, 11 (Table III.) These gave exactly the same reading to the decimal place (with the exception of one) at the second examination Two of these sera were examined a third time with exactly similar results The intervals between the examinations were from one to five weeks.

3 Sera which gave a rising titre 16 (Table IV) One of these was examined a third time and still showed a slight rise in titre The figures obtained over a period of 11 weeks were 5 3 13·4 and 25·0 agglutinin units In this case the period which had elapsed between the date of inoculation and the date of the first examination was nine months

In all these cases the difference between the two readings was well below 50 agglutinin units, except one which showed a difference of 71 units This case had been inoculated three months previously when agglutinins are rapidly on the wane and though it is not justifiable to base a theory on a few cases it would appear that when the agglutinins the result of inoculation, are falling after reaching their maximum instead of coming down in a straight line they fall in a somewhat irregular fashion that is with small secondary up and down waves these irregularities being more marked in the earlier months after inoculation than in the later months when the secondary waves become as it were, flattened out There is some evidence of such occurrence in the subsequent Table VII where the sera show slight variations at repeated examinations The suggestion therefore that the main curve after inoculation is a rise and then a fall but that this line has secondary curves on the down grade where occasionally the serum either remains steady at its titre or perhaps rises and then falls The titre of the serum though falling recovers itself as it were, at intervals on its downward route

TABLE III

Months between date of inoculation and date of 1st examination	Interval between examinations: One week			Two weeks			Three weeks			Five weeks		
	1st reading	2nd reading	Difference	1st reading	2nd reading	Difference	1st reading	2nd reading	Difference	1st reading	2nd reading	Difference
2	44 6	44 6	0									
3	53 7	53 7	0									
6	8·9	8 9	0				10·7	10·0	0 7			
9	5 3	5 3	0									
12				10 6	10·6	0				10 7	10 7	0
17				5 3	5 3	0						
19				10·0	10·0	0						
19				44 6	44·6	0						
5 years	5 3	5 3	0									

TABLE IV

Months between date of inoculation and date of 1st examination	Interval between examinations: One week			Two weeks			Three weeks			Four weeks			Five weeks			Ten wee	
	1st reading	2nd reading	Difference	1st reading	2nd reading	Difference	1st reading	2nd reading	Difference	1st reading	2nd reading	Difference	1st reading	2nd reading	Difference	1st reading	2nd reading
3	285 6	357 1	71 5				28·6	60 0	31 4				Neg	13 4	13 4		
6										28 6	50·0	21 4					
7				26 5	28 4	1·9											
8	Neg	5 3	5 3														
9				5 3	13 4	8 1	Neg	8·9	8·9				13 4	28·6	15·2		
12	8·9	44 6	35·7														
12	50·0	60·0	10 0														
13				10·0	25 0	15 0											
18													5 3	10 7	5 4	21 5	50·0
19							6·3	10·6	5 3								
20	10·0	20·0	10 0														

In any event in the absence of a violent upward rise in the agglutinin unit content during a short time, these results would not lead one into the error of making a diagnosis of typhoid fever It must be remembered that in a recently inoculated case the titre of the serum is rapidly rising or falling, and therefore the larger the number of agglutinin units one finds in such a serum the greater will be the difference between two readings taken at an interval of, say, three weeks Fortunately for diagnostic purposes, this case is unlikely to be met with owing to the extreme rarity of typhoid fever occurring in such a recently inoculated individual

One other point might also be mentioned—namely, in a case suspected of typhoid fever, information should be obtained as to how many antityphoid inoculations the patient had received, as in the earlier part of this paper it will be remembered that men who had been once inoculated are apparently less liable to maintain their agglutinins at a steady high titre than those inoculated twice Finally, it is interesting to note that three sera of this series—namely, those giving a rising titre—showed no agglutination on the first examination, whereas on the second examination agglutinin units made their appearance—namely 5 3 8 9, 13 4—the second examination having been carried out one three, and five weeks after the first examination These three sera were taken from men who had received anti typhoid inoculation three, eight, and nine months previously respectively

4 Sera which gave a falling titre, 26 (Table V) Three of these were examined a third time and one of them on a fourth occasion These subsequent examinations showed the titre to be still falling

(a) Inoculated 6 months previously during a period of 6 weeks they gave 71 4 53 5 44·6 units
(b) Inoculated 14 months previously during a period of 15 weeks they gave 142·8 26 8 3·0 units
(c) Inoculated 10 months previously, during a period of 15 weeks they gave 25·0 17 8, 8·9 5·0 units

Generally speaking, the fall in standard agglutinin cont was gradual, but with the sera of cases more recently inoc lated the titre dropped more suddenly particularly when t interval between the first and second examination was long as ten weeks This is what might be expected, becau after the maximum has been reached the decline in titre more rapid in the earlier months than in the later mont following inoculation There is one exception in this set sera—namely, the serum of a man who was stated to ha been inoculated so long as 14 months previously This m showed a comparatively high agglutinin content 142 8 the first examination and only 26 8 after two weeks Unfort nately, this man was lost sight of before the date of h inoculation could be verified but it appears probable that h had been inoculated much more recently, judging by th comparatively high agglutinin content and the sudden dro in the titre of his serum. Here again the ascertaining the date of inoculation and the number of inoculatio received appears to assume a certain amount of impor ance in drawing conclusions from the variations in th standard agglutinin content of the serum in successiv examinations

5 Sera which gave a certain amount of fluctuation 1 (Table VI) These may be divided into Sera which gav (a) a steady titre followed by a fall in titre, 2 , (b) a risin titre followed by a steady titre 2 , (c) a rising titr followed by a falling titre, 2 , (d) a falling titre followed by rising titre, 5 , and (e) a steady titre followed by a ris with a subsequent fall, 1 These numbers are too small t admit of any conclusions, but they show that slight varia tions are to be met with which are comparable to the sera o Tables IV and V This may be due to individual pecularity the existence of which is pointed out by Dakeyne [3] or it may represent the secondary curve inset in the main agglutinatio curve in the titre of the sera of inoculated persons as previously suggested

TABLE V

Months between date of inoculation and date of 1st examination	Interval between examinations: One week			Two weeks			Three weeks			Four weeks			Five weeks			Six weeks			Eight weeks			Ten weeks			13 weeks		
	1st reading	2nd reading	Difference	1st reading	2nd reading	Difference	1st reading	2nd reading	Difference	1st reading	2nd reading	Difference	1st reading	2nd reading	Difference	1st reading	2nd reading	Difference	1st reading	2nd reading	Difference	1st reading	2nd reading	Difference	1st reading	2nd reading	Difference
1				80·5	26 8	53 7													106 3	31 1	75·2	446 4	107 5	338 9			
2							71 4	44·6	26 8																		
3				68 4	44·6	23·8	57·0	22 3	34 7																		
4							35 6	13 4	22 2	57·0	35 7	21 3															
5	13 4	5 3	8 1	13·4	10 7	2 7							235 6	71 4	214 2	53 7	13 4	40 3									
6							71 4	54 5	17 9																44·6	21·5	23 1
7							89 2	71 4	17 8																		
9	20 0	10·0	10 0				178 5	133·9	44 6																		
9	26·5	14 2	12 3							25·0	17·8	7·2				2 1	Neg	2 1	5 3	Neg	5 3						
10																											
12	44 6	5 3	39 3																								
12	63 4	44 6	23 8																								
13				17 8	13 4	4·0																					
14				142·8	26 8	116·0																					
24	8·9	3 5	5 4																								

TABLE VI

Months between date of inoculation and date of first examination	First reading	Serum examined after— 1st week	2nd week	3rd week	4th week	6th week	8th week	9th week	11th week	14th week	15th week	16th week	18th week
		Steady titre followed by a falling titre											
5	44·6	44 6		22 3									
10	44 6	44·6		32 1					28 6				
		Rising titre followed by a steady titre.											
12	8·0	17 8	22 3	22 3									
16	10 6		13 4							25 0	25·0		
		Rising titre followed by a falling titre											
6	8 9	17 8		..	13 4								
13	14·2		22 3		8·9					5 3			
		Falling titre followed by a rising titre											
2	178 5	..								53 7		50·0	100·0
2	215·0	..	53·5		107·0		..						
7	28·6		10 7			31·2							
8	22 3	8·9			13 4	..							
10	142·8	17·8		26 8								..	
2 years	53 7				28·6	..		100·0				..	
		Steady titre followed by a rise and then a fall											
11	44·6	44·6	71 4	35 7			13 4						

E *Cases definitely known to have been Uninoculated Sera of Group III*

Number of cases 32 Of these, 3 were positive for *B typhosus* and 29 were negative Of the 3 positive cases 2 contained 13 4 agglutinin units (Ref Nos 33/24 3 16, 11/31 3 16), 1 contained 125 agglutinin units (Ref No 13/23 6 16)

With regard to the non inoculated case, which gave 125 agglutinin units, the specimen was received on two occasions with an interval of a week and gave exactly the same reading It did not affect 7160 Inquiries were instituted and it was positively stated that this case had not been injected and never had typhoid fever The fæces were obtained and plated out, but no non lactose fermenters were found This case is remarkable in giving such a high agglutinin content and is similar to the case described by Dreyer Ainley Walker and Gibson.[4] The serum in their case agglutinated typhoid up to 1 in 1250 dilution though the man had not been inoculated denied that he ever had typhoid fever, and the writers failed to find typhoid bacilli in the fæces or urine

With regard to the other two cases, 33/24 3 16 and 11/31.3 16 which gave 13 4 agglutinin units, no answer has yet been received to inquiries

II AGGLUTINATION RESULTS WITH B ENTERITIDIS OF GAERTNER (DELEPINE 7160)

A. *Sera of Antityphoid inoculated Men (Groups I and II)*

Number of sera 270 of which 53 or 19 6 per cent were positive, and 217 or 80 4 per cent, negative Of these 53 positive sera 30 agglutinated 7160 up to 1 in 25 dilution, 15 up to 1 in 50 5 up to 1 in 125, and 3 up to 1 in 250 No agglutination was observed in any dilution higher than 1 in 250

B *Influence of Antityphoid Inoculation on Agglutinating Power of Sera for B 7160 Delépine (Groups I and II)*

As none of the 53 sera which agglutinated 7160 (Groups I and II) suffered from active symptoms of enteric fever or from food poisoning so far as could be ascertained the question arises as to whether the presence of Gaertner agglutinins in these sera is to be ascribed to the anti typhoid inoculation If such influence were exerted it is highly probable that the length of time that had elapsed since inoculation would have some effect on the agglutinating power of 7160 With the object of revealing such influence (if it existed) Table VII was drawn up It shows the titre of the sera for 7160 and the number of months which had elapsed since antityphoid inoculation had been performed It will be seen from this Table VII that the length of time which had elapsed since a patient has been inoculated against *B typhosus* exerts no influence over the clumping power of his serum for 7160, marked agglutination being obtained with various sera whether the men had received inoculation one month or 25 months previously

TABLE VII

Number of months between date of inoculation and date of examination	Number of sera agglutinating 7160	Titre of sera against 7160: 1 in 25	1 in 50	1 in 125	1 in 250	Number of months between date of inoculation and date of examination	Number of sera agglutinating 7160	Titre of sera against 7160: 1 in 25	1 in 50	1 in 125	1 in 250
1	5	2	2	1		12	11	6	3	1	1
2	3	1	2			13	3	2		1	
3	4	1	2		1	14	1		..		1
4	6	5		1		15	1	1			
5	2	2				16	1			1	
6	4	3	1			17					
7	4	2	2			18	1	1			
8						19	1	1			
9	2	1	1			25	1	1			
10	2	1	1								
11	1		1			Totals	53	30	15	5	3

C *Influence of Syphilis on Agglutinating Power of Sera for 7160*

An analysis of the 7160 agglutination results has been made out in order to see whether active syphilis influences the behaviour of the sera in any way Sera of Groups I and II 270 sera of inoculated individuals As before, 42 cases must be eliminated only those cases which gave a +3 or +4 Wassermann and about which full clinical details were available, this leaves 228 cases to be examined (Table VIII.) These cases may again be divided into two sections those which gave a positive Wassermann, 105 (Section I), and those which gave a negative reaction, 123 (Section II)

TABLE VIII.

Section I Positive Wassermann				*Section II Negative Wassermann*			
Lesions	No of cases	Positive for 7160	Negative for 7160	Lesions	No of cases	Positive for 7160	Negative for 7160
Primary..	59	17 (28 8/)	42 (71·2/)	Suspected primary	100	16 (16·0/)	84 (84 0)/
Secondary	46	12 (26·0/)	34 (74 0/)	Suspected secondary	23	3 (13·0/)	20 (87·0)/
Totals	105	29 (27·6/)	76 (72 4/)	Totals	123	19 (15 4/)	104 (84·6/)

From Table VIII it would appear that syphilis as evidenced by the presence of a positive Wassermann does exert some influence in increasing the agglutinating property of the serum of the subject for 7160 Those having a positive Wassermann gave 27 6 per cent positives for 7160 whereas those having a negative Wassermann gave 15 4 per cent positives for 7160 a difference of 12 2 per cent Whether this difference is only apparent or real, it forms a contrast with the results obtained when the typhoid agglutinating power of these sera is subjected to a similar analysis those sera having a positive Wassermann showing practically no difference to those having a negative Wassermann in their agglutinating power to *B typhosus* It must be taken into consideration that a far larger number of sera of inoculated individuals (87 1 per cent) agglutinate *B typhosus* than agglutinate 7160 (19 6 per cent), and therefore probably the results are not strictly comparable

D *Sera of Inoculated Cases (Groups I and II) examined more than once against Gaertner 7160*

Number of sera, 75 These may be divided up as follows Sera which gave (1) steady negative 62, (2) steady positive 3, (3) a rising titre 3, and (4) a falling titre, 7 To describe these in detail —

1. Sera which gave steady negatives 62. Of these 43 were examined twice, 11 on three occasions, 6 four times, and 2 five times Two of the sera examined twice (Ref. Nos 7/31 3 16 and 17/2 6 16) had a history of previous typhoid fever, the first 15 years ago and the second 16 years ago

2. Sera which gave steady positives 3 These were each examined on two occasions and gave the same reading each time—viz. positive in 1 in 25 after one week's interval in 1 in 50 after three weeks interval, and in 1 in 125 after one

week's interval One of them Ref No 9/21 1 16, which agglutinated 7160 in 1 in 125 dilution, had a history of typhoid 18 years ago His serum did not affect *B para typhosus A* or *B* He had never suffered from food poisoning He had received antityphoid inoculation nine months before the first specimen was examined and gave a slightly falling titre for *B typhosus*, 26 5 and 14 2 agglutinin units per 1 c c of serum

3 Sera giving a rising titre Of these Ref No 12/10 3 16 was examined three times during the course of four weeks The first two specimens failed to agglutinate 7160, but the third time it agglutinated 7160 in 1 in 25 dilution He had received antityphoid inoculation two months previously and showed a slightly falling titre for *B typhosus* The second serum, Ref No 27/9 6 16 rose from a positive in 1 in 25 dilution at the first examination to a positive in 1 in 50 at the second after an interval of a week. This serum had no effect on *B paratyphosus A* or *B*, and gave a slightly rising titre to *B typhosus* This man had been inoculated 12 months prior to the first examination The third, Ref No 32/4 2 16, rose from a positive in 1 in 125 dilution to 1 in 250 after an interval of three weeks There was a falling titre for *B typhosus* He had been inoculated nine months prior to the first examination The full clinical details of this case have not yet come to hand.

4 Sera which gave a falling titre Of these 4 fell from a positive in 1 in 25 dilution to 0 during a period of from two to three weeks One of them was examined four times subsequently with a negative result These cases had received antityphoid inoculation 2 3 4 and 7 months prior to the first examination Three sera fell from a positive of 1 in 50 to 0 One of them was examined on two subsequent occasions during a course of three weeks and proved negative for 7160

E *Results of Cases Definitely Known to have been Uninoculated (Group III) Agglutinin Results with 7160*

Number of cases 32 Of these 6 agglutinated and 26 did not agglutinate 7160 Of the 6 positive cases 4 agglutinated up to 1 in 25 dilution 1 up to 1 in 50, and 1 up to 1 in 250

The case which agglutinated 7160 in 1 in 250 dilution (Ref No 21/4 2 16) was received three times for examination with a one week interval It gave a positive reaction on three occasions as follows 1 in 250, 1 in 125 and 1 in 250 The serum in this case did not agglutinate *B typhosus B paratyphosus A* or *B* He had never had typhoid fever and did not suffer from symptoms of food poisoning

The case which agglutinated 7160 in 1 in 50 dilution (Ref No 25/9 6 16) was received twice subsequently at one week and four week intervals but on the second and third occasions the serum failed to affect 7160 and was negative for *B typhosus* and *B paratyphosus A* and *B* No non lactose fermenters were discovered in the fæces This case had typhoid in 1906 —that is ten years prior to the date of the examination of the serum

F *Results with Sera of Cases about Whom Information as to Inoculation was Not obtainable (Group IV)*

Although it is primarily intended to deal with the 7160 agglutinations of this Group IV it would be well to consider what was their probable relation to inoculation

Agglutination results with B typhosus —Number of cases 64, 30 gave a positive and 34 gave a negative result Of the 30 positive cases 16 contained up to 25 agglutinin units per c c 7 up to 50 units, 4 up to 75 units 1 up to 100 units 1 up to 125 units, and 1 up to 300 units The percentage of negative cases is much higher than is found among inoculated cases so it is probable that a large number of them had not received any inoculation

Agglutination results with 7160 —Number of cases 64, of these 13 were positive and 51 negative for 7160 Of the 13 positive cases 4 agglutinated up to 1 in 25, 6 up to 1 in 50 2 up to 1 in 125 and 1 up to 1 in 250

Note —Nine of these cases were examined more than once with the following result —(*a*) Negative 7, examined twice 6 examined three times 1, (*b*) Positive at first examination subsequently negative 1 in 25 1, (*c*) Negative at first reading and subsequently positive 1 in 50 1

Total Agglutination Results with Gaertner (Delépine 7160)

As antityphoid inoculation bears no relation to the agglutinating power of a serum for Gaertner (Delépine 7160), the results of the sera of each group of the present series of cases can be taken collectively as follows —

	No of cases	Agglutinated 7160
Groups I and II, inoculated cases	270	53
Group III cases known to have been not inoculated	32	6
Group IV cases about whom information as to inoculation was not obtainable	64	13
	366	72 (19·6%)

The actual titre with which agglutination was obtained is given in Table IX. —

TABLE IX

—	Number of sera	Positive sera.	Dilution of serum			
			1 in 25.	1 in 50	1 in 125	1 in 250
Groups I and II	270	53	30	15	5	3
Group III	32	6	4	1	0	1
Group IV	64	13	4	6	2	1
Totals	366	72	38	22	7	5
Per cent		19 6	10 4	6·0	1 9	1 3

Therefore, any deductions one might seek to base upon the behaviour of the sera of persons who form the 366 units of the Groups I, II, III, and IV are liable to an error of 19 6 per cent if so strong a serum as 1 in 25 be taken As the dilution is increased the error grows less — namely, 9 2 per cent when a 1 in 50 dilution is taken 3 2 per cent with 1 in 125 and 1 3 per cent with 1 in 250 Above a 1 in 250 dilution the error disappears altogether These results are interesting in view of the work recently published by Ritchie,[6] where an analysis of the "normal" mean agglutination of sera for bacilli of the typhoid dysentery group is made and where deductions have been drawn as to how far dilution of serum is necessary before positive agglutination can be regarded as evidence of a particular disease He points out that such a high dilution as 1 in 128 cannot be relied upon for diagnostic purposes in the case of *B dysenteriæ* (Flexner) infection, whereas in the case of *B dysenteriæ* (Shiga) *B typhosus B paratyphosus A* and *B* agglutination with a much lower dilution of serum can be taken as diagnostic

III GENERAL RESULTS WITH CASES WHICH HAD A PREVIOUS HISTORY OF TYPHOID FEVER (IN GROUPS I II, AND III)

Total number 13 Of these 9 had been inoculated with typhoid vaccine and 4 had not been inoculated (see Table X) Three sera agglutinated 7160 These were also tested against paratyphoid A and B, with a negative result

TABLE X

—	Number	Previous history of typhoid fever	Antityphoid inoculation		Effect on *B typhosus*	Effect on 7160	Effect on para *typhosus A* and *B*	Reference number
			No of	Date of last	Units	Dilution		
Inoculated	1	4 mths	2	9 mths	None	None		10/23 1 16
	2	6 years	2	18	5 3			14/7 4 16
	3	8	2	15	20 0	1 in 25	None	3/9 6 16
	4	9	2	13	5 3	None		8/26 5 16
	5	15	2	5	13 4			7/31 3 16
	6	16	1	8 years	None			17/2 6 16
	7	18	2	4 mths	13 4			10/12 5 16
	8	18		9	26 5	1 in 125	None	9/21 1 16
	9	22	2	4	13 4	None		21/21 3 16
Not inoculated	1	10 years	None	None	None	None		4/2 6 16
	2	10						5 19 5 16
	3	10				1 in 50	None	25/9 6 16
	4	15				None		10/23 6 16

Among the inoculated cases in No 1 (Ref No 10/23 1 16) the serum was submitted twice for examination On the first occasion it failed to agglutinate *B typhosus* but on the second it did so (8·9 agglutinin units per 1 c c.) On neither occasion did it affect 7160 It was subsequently

ascertained that the man had had dysentery five months and typhoid fever four months previously Unfortunately the patient left Dublin before a sample of his serum could be obtained to test for paratyphoid agglutinins, but the case is being followed up and inquiries have been instituted as to the serological findings obtained during his illness

Case 8 (Ref. No 9 21.1.16) The serum was examined twice, on the first occasion it gave 26 5 agglutinin units for *B typhosus* and agglutinated 7160 in 125 dilution On the second occasion, one week later it gave 14 2 typhoid agglutinins and agglutinated 7160 in 125 dilution On inquiry it was stated that he had never at any time suffered from symptoms of food poisoning

Among the non inoculated cases No 3 (Ref No 25/9 6 16) was examined on two subsequent occasions, once after a week, and a second time five weeks after the first examination, on both these occasions it failed to agglutinate 7160 An examination of the fæces proved negative for non-lactose fermenting bacilli.

IV SUMMARY

1. Out of the 270 sera of inoculated men examined 37 1 per cent gave positive agglutination for *B typhosus* Of these, the greater number gave up to 25 standard agglutinin units per 1 c.c of serum, after this the percentage of units obtained dropped rapidly until the number of sera containing more than 125 agglutinin units formed but quite a small percentage of cases

2. During the first month after inoculation the maximum number of agglutinin units is obtainable. This maximum falls rapidly during the third month after inoculation Between the fifth and fourteenth month a fairly high agglutinin unit content may be met with, but after 15 months subsequent to inoculation the agglutinin units were not found above 100

3. There is some evidence to show that after the highest point in the agglutination, following antityphoid inoculation has been reached the subsequent fall is progressive but is inclined to remain steady or even to rise slightly at intervals so as to form secondary waves on the downward course. This is more marked in the earlier months following inoculation than at the later months

4 The sera of men inoculated twice give more positive reactions than men inoculated only once. Also a greater number of them give 25 50 and 100 agglutinin units Higher titres are obtained with the sera of men inoculated twice during the second, third, and fifth months after inoculation than among those who have been inoculated once

5 The presence of syphilis (as indicated by a positive Wassermann) does not affect the agglutinating power of a serum for *B typhosus* though apparently it does appear to increase slightly its power to agglutinate 7160

6 The agglutinating power of a serum for 7160 is not influenced by antityphoid inoculation.

7 Out of 366 sera, consisting of both inoculated and non-inoculated men who had either had or were suspected of having syphilis 19 6 per cent agglutinate *B enteritidis* Gaertner (Delépine 7160) when a 1 in 25 dilution is used A much smaller percentage may agglutinate this bacillus up to a 1 in 250 dilution. None of these sera were found to affect 7160 in a higher dilution.

8 Out of 13 cases with a previous history of typhoid fever only 3 agglutinated 7160 These cases had had typhoid fever 8 10 and 18 years respectively previous to the date of examination. The 10 cases not agglutinating 7160 had had cases of typhoid fever four months to 22 years previously

9 Any of the sera clumping 7160 which were examined for co-agglutinins for *paratyphosus A* or *B* proved negative.

BIBLIOGRAPHY —1. Dawson, George D A Preliminary Account of a Research on the Diagnosis of Typhoid Fever in Inoculated Subjects. Brit. Med. Jour., June 26 th 1915. 2. Dreyer Georges Widal's Reaction with Sterilised Cultures. Journal of Pathology and Bacteriology xiii., 1909 Also see THE LANCET 1915 ii. 837 and Ainley Walker E. W A Note on Widal's Reaction with Standardised Agglutinable Cultures THE LANCET 1916. i 17. 3. Tidy H. L. Discussion on Paratyphoid Fever Royal Society of Medicine, THE LANCET 1915. ii 1151. Also Tidy H L. Influence of Febrile Conditions on Inoculation Agglutinins, THE LANCET 1916. i. 21. 4 Dreyer Georges Ainley Walker E. W., and Gibson, Alex. G Typhoid and Paratyphoid Infection in Relation to Antityphoid Inoculation THE LANCET 1915. i. 5. Dakeyne, D J Observations on Some of the Agglutinin Reactions in the Blood of Soldiers Inoculated against Typhoid Fever THE LANCET 1915. ii. 5. 6. Ritchie T B. On the Agglutination Reaction of the Bacilli of the Typhoid Dysentery Group with Normal Sera. THE LANCET 1916 i. 1257

CHRONIC GONORRHŒA CURED BY ELECTROLYSIS

BY CHARLES RUSS, M B LOND, M R C S

(From the Electrical Department of the Lock Hospital Dean-street London W)

CHRONIC gonorrhœa is an unfortunate state for any patient and it also represents a clinical condition which often taxes the patience of the doctor in charge of the case as much as that of the sufferer The condition is one which is the more exasperating because after all there may be so little to get rid of, and yet it is (if the gonococcus be still present) material of such significant and potential virulence.

I think it is insufficiently realised that if treatment by injections or bougies or irrigation, or medicine, or combinations of these methods have failed to cure a case of gonorrhœa after several months it is not only useless but actually harmful to continue them How often does one find that irrigations continued for many months and having failed to cure have become changed from irrigations into irritations Within the last year numerous patients have come under my care in whom these things had happened and I think it well to indicate the lines on which I have attained success Although the great majority have been cured and I should prefer to know of any failures I can only find record of one or two in which the result remains unknown because of the expiration of sick-leave and an unavoidable return to active service The following are cases illustrating an advantageous change of treatment.

CASE 1 —The patient was sent to me with the following history After a recent festivity he alleged a gradual onset of a discharge which was ascribed to another return of an old attack. As usual I examined Gram stained films of his copious discharge and found groups of gonococci in every field. He also admitted scalding and smarting, and in a consultation with his medical attendant who was present, the history was withdrawn and a reinfection conceded six months before Although his medical attendant had been misled the patient mentioned that he had from the outset the help of two specialists, who had irrigated and injected silver compounds into the deep urethra and inserted soluble bougies and it was easy to believe his opinion that after six months he was little, if any, better This patient had got it well on his nerves and he had moderately severe rheumatism

Treatment —I began electrolysis of the anterior urethra every other day until 14 treatments had been given, and then proceeded to electrolyse the deep urethra and gave ten more administrations The patient was absent on business for nine days after a month's treatment, and the case was finished after treatment spread over seven and a half weeks Repeated microscopy showed the absence of pus and the cure is assured by my continued touch with the patient up to one year after beginning his case

The accessory treatment consisted in the use of santal oil salol and a few doses of vaccine The last named seemed unable to suppress the rheumatism which only disappeared with the absence of the gonococcal discharge

I think that not the less important part of the cure in the above case was the immediate stoppage which I enforced of any injections or irrigations even during the patient's enforced absence. The case illustrates the recuperative power of a previously irritated mucous membrane, which was gently relieved of its gonococci as described.

CASE 2.—This patient arrived from abroad on crutches with a history of acute gonorrhœa of ten weeks standing He had been thoroughly irrigated and developed a very swollen and inflamed knee full of fluid. This knee had been blistered freely and the patient was naturally full of anxiety He had been given several doses of vaccine

Treatment —As usual I focussed my efforts on the discharge and did nothing at all to the knee. The irrigations were stopped and small doses of vaccine and a little santal oil were administered. After eight treatments the discharge was difficult to find and I ordered the patient to begin walking which was now no painful Though the limb was wasted from disuse he soon walked easily, and after six weeks could do all bending exercises except supporting the whole body on the bad knee in the bent position (quite a strong test for healthy folk) In this case however, the final clearance of pus and gonococci was unexpectedly prolonged but after 28 treatments the patient recovered and took an army commission

The interest I think, of this case is the rapid resolution of the inflammation of the knee coincident with the overcoming of the discharge.

CASE 3—*The history in this case* was as follows Gonorrhœa had been contracted 11 months before, and had treatment by irrigations and injections, besides vaccine The patient was pale and unable to walk on account of a painful, very hard and swollen epididymis of recent occurrence

Treatment—After seven electrolysis treatments as far as the compressor urethræ the urine was almost clear, but microscopically it showed a trace of pus, although the testicle was nearly normal in size I then electrolysed into the deep urethra and gave four deep urethral treatments, making 11 administrations in all during 41 days The patient made a complete recovery, and on account of a visit in connexion with military service I was able to confirm his cure six months later Besides the electric treatment he took a little santal oil and had five doses of gonococcus vaccine, and, of course, irrigations and injections were stopped from the outset

CASE 4—This patient had contracted gonorrhœa three months before and used injections of potassium permanganate He was unable to arrest the discharge and he found its volume rapidly increasing after stopping the injection Microscopic examination showed very numerous gonococci, and the patient's condition was the worse for an impaired nervous system after 11 months' artillery work in France without any leave

Treatment—Although much persuasion was required to enforce abstinence from the use of any injections or lavage, the patient was soon reassured by the cessation of all discharge after six electrolyses, two of which were within the deep urethra He remained free from any symptoms for several months after stopping the treatment and had resumed the use of alcohol This intelligent patient had also arrived at the unhappy stage of incessant scrutiny of his urine in the domestic tumbler His recovery was associated with great benefit to his nervous system and general health

In the foregoing cases both pus and gonococci were found by microscopic examination of the discharge, and that fact decided me to use electrolysis The worst of the chronic cases however, show no gonococci, and there is a predominance of epithelial cells and much less pus in the discharge Such cases will take longer to cure, and often, I think, electrolysis should be avoided, at any rate, until other means have been tried In these cases with epithelial peeling, as shown by the microscope, one finds various bacteria to be present—viz staphylococci, colon or diphtheroid bacilli, and the procedure which I prefer is as follows Prohibit the continued irritation of injected chemicals and the loss of more epithelium by the operations of lavage and allow no instrumentation whatsoever of the weakened urethral mucosa An autogenous vaccine should be made from the bacteria present and used by weekly injections in gradually increasing strength Besides this, small doses of a urinary antiseptic should be taken after meals and abstinence from alcohol enforced The antiseptic may be urotropin, santal oil, or salol I believe any attempt at diuresis is to be avoided for one naturally tries to give the urethral passages as much rest as possible when showing signs of chronic irritation In one chronic case of this type of five years' duration the patient's moderately copious discharge was composed almost entirely of urethral cells, and this was the worst case I have ever examined

Another difficult class of chronic case is the man with urethral stricture and a discharge If microscopy shows pus and gonococci the latter should be removed by electrolysis In treating these cases, however it is advisable to go very slowly and with only a small current One trouble some liability is a spasmodic contraction upon the inserted catheter during the flow of the current and of which the patient is usually unaware Attempted withdrawal shows its retention in what feels quite a firm hold I have found its release to follow a rather strong reversal of the current for a few minutes or the injection of stovaine 2 per cent. solution into the catheter will bring about its release

Needless to say, stricture cases must be handled with nothing approaching force for besides the pain which would occur the major damage of laceration and simultaneous bacterial inoculation of the inflamed (and sometimes ulcerated) area behind the stricture might occur, and constitutional disturbances result Cases of acute gonorrhœa are no doubt, cured by the routine methods in general use and when this occurs all is well When however no cure has been obtained the treatment needs to be radically altered before the patient s urethral vitality has become damaged by persistence in methods which are no longer able to produce progress

I am convinced that the above illustrative cases prove that many of the failures can be cured if helped in quite a different way

A CASE OF

A BULLET IN THE SPHENOIDAL SINUSES, REMOVAL THROUGH THE LEFT NOSTRIL

BY H ELWIN HARRIS, F R C S ENG

CAPTAIN R A.M.C (T) SURGEON BEAUFORT WAR HOSPITAL, BRISTOL.

ALL who are engaged in war surgery must be impressed by the many unexpected and diverse paths taken by bullets to reach their ultimate resting places The following case is in many respects so unique that I think it worth recording

A soldier, aged 22, in an infantry regiment, whilst on active service in Suvla Bay was wounded over the left hip The surgeon was commencing to dress his wound when the patient was struck a second time by a bullet, which for a short time rendered him unconscious After regaining consciousness blood was found trickling down the side of his nose from the left inner canthus He was invalided home and sent to the Beaufort War Hospital On examination at the hospital no wound or scar was found either on the face or in connexion with the eye or on the scalp There were swelling and paralysis of the eyelids and optic atrophy on the left side (Major Walker) A skiagram of the skull revealed the presence of a bullet lying transversely and obliquely below the sella turcica, its base was seen in the left sphenoidal sinus and the body passed obliquely downwards and forwards through the septum between the sinuses, its nose resting in the roof of the right nasal cavity (See Skiagrams 1 and 2) There can be no doubt that the bullet entered at the left inner canthus, that it passed along between the eyeball and the inner wall of the orbit, until it reached the apex of that cavity Here turning downwards, inwards, and forwards, it described an angle of more than 180°, entered the sphenoidal sinus, wounding in its course the third and optic nerves

FIG 1

Skiagram taken antero-posteriorly

Having discovered this foreign body the question arose, Should it be allowed to remain or would it be in the interest of the patient to remove it? Major Walker, ophthalmic surgeon to the hospital, was of opinion that the optic atrophy had so far advanced that removal, as far as any improvement in vision was concerned, would be of no benefit On the other hand in my opinion to leave a foreign body of such magnitude in the sphenoidal sinuses and to expose the patient to the risk of a very probable suppurative sinusitis was not in his best interests Eventually I explained fully to the patient the danger of allowing it to remain emphasising at the same time that its removal could not be effected without appreciable risk, and I left it to him to decide There was no hesitation on his part, he was willing to submit to anything if only the bullet could be got at

As the skiagram showed that the greater part of the bullet was lying on the left of the middle line and the left nostril being more roomy than the right, I decided to proceed from that side At different stages the anterior half of the inferior and most of the middle turbinals were removed. On the next occasion I broke through the anterior wall of the

sphenoidal sinus with a Watson Williams trocar (a skiagram was taken showing the trocar passing over the bullet in, and its tip resting against the roof of the sinus) An attempt was then made to introduce cutting forceps with a view to enlarge the opening in the anterior wall It was at this stage that I met with difficulty and delay Neither then nor at any of the attempts I subsequently made was I able to introduce any instrument of this kind. Whether this was due to the position of the bullet or to faulty technique on my part, I am unable to say, but it became evident that if the foreign body was to be removed some other method

FIG 2

Skiagram taken transversely

than that usually adopted must be tried. After mature deliberation I decided to make a final attempt with the patient under a general anæsthetic and upon the X ray table This I did on June 30th last The patient having been anæsthetised, the lights were turned out and in all the stages of the operation one was entirely guided by the image on the X ray screen The trocar was first passed up the left nostril into the sinus, showing that the opening previously made in the anterior wall was patent. This being withdrawn, a Watson Williams "rasp" was introduced and slipped over the bullet with its cutting surface downwards Turning it so that this surface pointed to the middle line, and keeping the side of the instrument in contact with the upper surface of the bullet I rasped away the bone cutting through the septum between the sinuses and as far as one could judge, almost to the tip of the bullet The next step was to remove the remaining portion of the anterior wall I again tried to introduce cutting forceps but failed Taking a hammer and a narrow rounded chisel from the cutting edge of which I had previously measured 3¼ inches, I passed the latter up to the bone and by a series of regulated strokes I broke down all that was in front of the bullet Having done as much of this as appeared necessary the chisel was withdrawn and a blunt hook was passed on the flat through the opening above the foreign body until it reached the roof of the sinus It was then turned downwards and the hook was felt to embrace the bullet After gently sliding it along until it was seen to be quite near the base gentle traction was made At first there was no response the base of the bullet appearing to be fixed against the outer wall but after persevering for a short time it yielded and was turned down into the nasal cavity, there it was seized with forceps and pulled down to the floor of the nose and was subsequently recovered The man made an excellent recovery, on the third day after the operation he was up assisting in the ward

My thanks are due to Mr Smallcombe skiagraphist to the hospital for the skiagrams and also for the most valuable assistance his experienced eye rendered me at the operation in localising the relative positions of the bullet instruments and adjacent parts

Bristol

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL

RETAINED PLACENTA IN A RUDIMENTARY HORN OF THE UTERUS

BY M C S LAWRANCE, M.B, CH B VICT, &c

THE patient was a primipara, aged 24, and had a very hard labour The presentation was a vertex one in the right occipito-posterior position I had to rotate manually and apply forceps After waiting 40 minutes for the placenta after the birth of the child and as no sign of it was forthcoming I tried to express it manually by compression and failed I then introduced my hand into the uterus and found the placenta in a rudimentary horn, the shape of the uterus abdominally was peculiar and led me to expect an abnormality The placenta was adherent all round and could not be peeled off, but had to be removed piecemeal. Two days later the patient passed a piece of placenta about the size of a watch but as there was no preceding hæmorrhage I concluded it had been detached before and had been lying loose in the uterus or vagina The patient made an absolutely uneventful recovery -

Earlestown Lancs

A CASE OF CONGENITAL ABSENCE OF NAILS

BY BERNARD O'NEILL, B.A CANTAB, M.R C S, L.R C.P LOND

A WOMAN aged 26, came to me in July of this year as a patient suffering from dental caries and anæmia. She was of frail appearance and pale and weighed only 6 st 10 lb

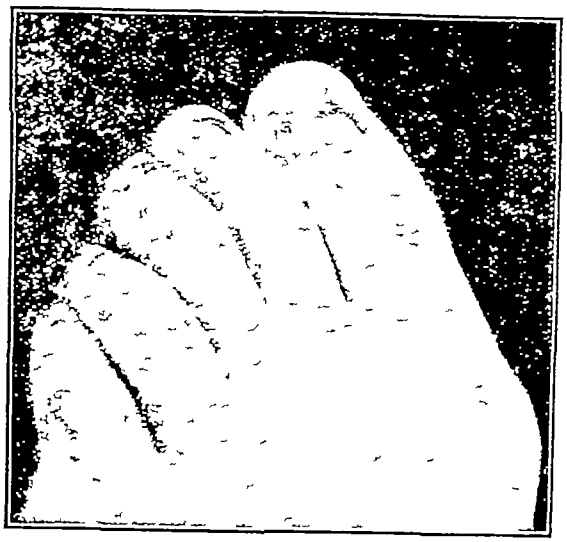
FIG 1

Right hand showing absence of finger nails.

She had no nails at all on the thumbs or fingers or great toes and only tiny fragments of nails on some of the other toes The nail beds were present on all the digits of the hands and feet and the fragments of nails found on some of the toes were placed round the edges of the nail beds or on the nail beds themselves The thumbs fingers, and great toes had a hooded appearance at the extremities In the fingers and thumbs the nail bed had an upper paler part and a lower shining and more vascular part, the latter corresponding to

the lunette in the nail of a normal digit The patient told me that her only other relatives with this peculiarity were two younger sisters, aged 25 and 6 years respectively

FIG 2



Left foot showing absence of toe nails

The following table of the family of brother and sisters is interesting, as showing in what order the abnormality occurs —

	Age		
Brother	28		With nails
Sister	26	(my patient)	Without nails
	25		
	21		With nails
	19		
	6		Without nails

The patient told me that her mother had the operation of evulsion performed upon the nail of one of her great toes during the time when she was carrying the subject of this note.

Chiswick W

Medical Societies.

ROYAL SOCIETY OF MEDICINE

SECTION OF MEDICINE

Œsophagectasia —Acquired Syphilis of the Lungs

A MEETING of this section was held on Nov 28th, Dr F PARKES WEBER being in the chair

Dr H BATTY SHAW and Dr A W WOO communicated a paper on six cases of Œsophagectasia, which was published in full in our issue of Dec 2nd

Professor S G SHATTOCK said that like idiopathic dilatation of other organs such as the bladder and colon the condition had a pathogenesis of its own, but one which was not known It was not due to vagal paralysis, for then the dilatation would be gradual and accompanied by gradual atrophy Chronic spasm of the cardiac sphincter was not the cause for if it were there would be local overgrowth of the muscular wall at the cardia which did not occur Kinks could not explain the origin of all cases, as specimens showed for if they had been in existence for any length of time there would be permanent deviation from the normal position which was not the case The view held by Dr Weber that there was a blocking of stimuli analogous to heart-block did not apply to the case of the œsophagus, for removal of lengths of œsophagus did not prevent conduction His own belief was that there was a want of coördination between the propulsive action of the œsophagus and the relaxation of the sphincter The peccant spot was probably the mucosa which was hypoesthetic and the defect might be confined to the area of the cardia The sphincter failed to relax and the œsophagus to empty just as the vesical sphincter remained shut and the bladder failed to empty if its mucosa were cocainised He suggested as treatment removal of the lowest inch or so of the œsophagus

Dr A F HURST agreed that the condition was probably not very rare, for he had met with seven cases He disliked the term "œsophagectasia" since at the earliest stage of the malady the œsophagus was not dilated Like the hypertrophy of the walls and the ulceration the dilatation was a secondary development He held that the normal activity of every hollow organ consisted in the passage of a peristaltic wave along it and the relaxation of the circular muscle at its distal aperture This had been demonstrated on animals and could be seen by X rays The relaxation occurred in the alimentary canal in three areas—at the end of the œsophagus, at the pylorus, and at the ileo-cæcal valve In the condition under discussion, so-called "cardio-spasm" there was a failure of relaxation of the cardiac sphincter, and it was more accurately designated by the term "achalasia" which he had applied to it There was no spasm for if a mercury tube were passed it was not gripped By some a spasm of the diaphragm had been suggested as a cause, but there was no record of any local hypertrophy of the diaphragm, no grip, and X rays showed that the diaphragmatic ring was not the site of the obstruction Reflex causes might produce this upsetting of the normal mechanism as was exemplified by inflamed conditions of the appendix, which lead to failure of relaxation of the ileo cæcal sphincter Some cases were probably purely nervous in origin Water brash a condition in which a quantity of neutral fluid was brought up illustrated his contention In that affection excessive acidity of the gastric contents led to achalasia and the saliva which poured out was swallowed and retained in the œsophagus, from which it was subsequently ejected

Dr WOO said that early diagnosis was of prime importance, for in early and slight cases careful dietary was quite effective In the severest cases no doubt operation was needed In cases of some standing unrelieved by dieting he said that stretching of the cardia by means of distensible bags covered by silk to limit their expansibility, had proved very successful

Mr HERBERT TILLEY said that his experience favoured the existence of spasm in the position of the orifice in the diaphragm When a tube was passed down the œsophagus under œsophagoscopy it could be felt to impinge against a resisting area, this then relaxed and the tube passed through If the same procedure were repeated under a general anæsthetic the tube was passed without encountering this resistance He urged that an œsophagoscope ought to be passed in all cases of obstruction in the œsophagus with very few exceptions, such as aneurysm For treatment he recommended the passing of a mechanical divulser and dilatation by its means once a week for five or six weeks. By this means many cases could be cured

Dr C R BOX showed a radiogram as a commentary of what might happen when a patient was entrusted to pass his own mercurial tube Though the patient believed that he was getting better by passing it, the radiogram showed that the tube did not enter the stomach, but lay curled up in the œsophagus

Dr PARKES WEBER read a paper on Acquired Syphilis of the Lungs After describing six cases of chronic non tuberculous disease of the lung three of which he regarded as syphilitic and three as probably of the same nature Dr Weber said that while he was physician to the Mount Vernon Hospital for Diseases of the Chest he practically never saw a case which he could regard as one of pulmonary syphilis but recently he had met with several in which he believed that that diagnosis could be made with more or less probability In one of these, that of a man, the nature of the lesion had been suggested by a patch of syphilitic leucoderma on the neck an eruption very rare in men Many writers on the subject had had the opportunity of making post mortem examinations The chief pathologico-anatomical features were (1) gummatous formation, with a tendency to necrotic changes, and (2) more chronic and often widely spread fibrotic changes, tending to become associated with bronchiectatic dilatations In the cases now described he thought the changes were chiefly of the fibrotic order though gummatous formation might also have occurred, especially in two of them According

to T Tanaka[1] the histology of the pulmonary indurative changes of acquired syphilis was very similar to that of the so-called "white pneumonia" of congenital syphilis The most characteristic features were much endarteritis obliterans, together with peri arteritis and endo phlebitis Mesarteritis also occurred, and in three cases Tanaka found a noteworthy increase of the unstriped muscle tissue which he regarded as derived from the walls of the small bronchi and which had till then never been described as connected with pulmonary syphilis In regard to clinical diagnosis the question of there being an aortic aneurysm or mediastinal new growth might arise especially if the left recurrent laryngeal nerve were paralysed But the clinical differentiation from tuberculosis was the chief difficulty, for in tertiary syphilitic diseases of the lungs there might be pyrexia, the so-called 'tertiary syphilitic fever" such as not very rarely occurred in tertiary syphilitic disease of the liver or a complicating fever due to associated bronchitic and bronchiectatic changes with purulent discharge. Moreover there might also be (though less in frequency and degree than in tuberculosis) night sweats, emaciation, hæmoptysis, and copious nummular muco purulent sputum. (In some cases of hæmoptysis many spirochætes had, he believed been found in the sputum, though doubtless not the *Spirochæta pallida* of syphilis) In pulmonary syphilis however the lower parts of the lungs were generally chiefly involved and the absence of tubercle bacilli in the sputum on frequently repeated examinations, together with a history of past syphilis evidence of tertiary syphilitic lesions elsewhere, and a positive Wassermann reaction ought to turn one s attention in the right direction In regard to pulmonary syphilis, one had to bear in mind the possible coexistence of syphilitic ulcers or stenoses in the bronchial tubes trachea or larynx. Stengel (1903) pointed out that one of the most suspicious symptoms was intense dyspnœa of more or less spasmodic type, with a tendency to stridor and cyanosis all of these being indicative of obstruction in the larger air passages In some cases the respiratory symptoms were altogether much more severe than the ordinary physical signs in the lungs would lead one to suppose There might also be recurrent severe spasmodic attacks of coughing accompanied by more or less copious muco purulent expectoration In some cases pleurisy and pleuritic effusion might be associated with pulmonary (gummatous) syphilis as they probably were in one of his cases The therapeutic test was always of extreme importance especially when the patient was found to derive obvious benefit from the use of potassium iodide a drug which sometimes aggravated the symptoms in pulmonary tuberculosis Old cicatricial stenoses of the respiratory passages could not of course be removed by antisyphilitic treatment It must always be remembered that pulmonary tuberculosis was not at all rare in syphilitic subjects and *vice versa* that tuberculous patients not very rarely acquired syphilis He did not think that the two diseases had much effect, either good or bad one on the course of the other unless one or both of them had been sufficiently severe to produce a condition of cachexia and to lower the resistance of the body towards disease Pulmonary tuberculosis, as far as he could judge was uninfluenced by the presence of an old quiescent syphilitic taint Though by some an antagonism between the two diseases had been supposed to exist it was more probable that syphilis predisposed to tuberculosis, in so far as it lowered the vitality of the organism , and it was not unlikely that syphilitic tissues as had been maintained[2] constituted a specially favourable soil for the growth and multiplication within the body of tubercle bacilli When the tuberculosis was active and the syphilis quiescent or obsolete the former naturally dominated the whole clinical aspect and the prognosis and the effect of energetic anti syphilitic treatment by mercury and potassium iodide was not unlikely to be a bad one Though salvarsan and neosalvarsan in moderate doses seemed to do no harm in ordinary cases of pulmonary tuberculosis yet as far as he knew, they did no good

[1] T Tanaka Beitrag zur kenntnis der Lungensyphilis beim Erwachsenen zugleich uber sogenannte muskuläre Lungencirrhose Virch w s Archiv Berlin 1912, ccviii 429

[2] Cf R. W Taylor Bone Syphilis Hereditary and Acquired New York Medical Journal 1907 lxxxv 7 Cf also on the whole subject Emile Sergent, Syphilis et Tuberculose Paris 1907 Gouget also (Journal des Praticiens Paris, 1910 xxiv 771) maintains that while tuberculosis does not predispose to syphilis the latter certainly does to tuberculosis

Reviews and Notices of Books.

1 *The Statutes, Regulations, and Orders relating to National Health Insurance*
With Notes, Cross-references, and an Index 1916 Published by Authority London Wyman and Sons Edinburgh H.M Stationery Office Scottish Branch. Dublin E Ponsonby Limited Colonies and Foreign Countries T Fisher Unwin, Limited Pp 691 Price 2*s* 6*d*

2 *The Panel Doctor His Duties and Perplexities*
By T M TIBBETTS M D Lond M R C S Eng L R C P Lond D P H. Member of the Staffordshire Insurance and Panel Committees 1916 Birmingham Cornish Brothers Pp 68 Price 1*s* 6*d* net

1 DURING the last twelve months the various and numerous regulations and amending regulations governing the administration of National Insurance have been grouped and consolidated into codes each dealing with a single subject, such as "The Collection of Contributions," "The Navy and Army,' or 'Married Women" An exception to this consolidation and codification has been made in the case of the regulations relating to medical benefit, which have been left untouched owing to the difficulties created by the war All the regulations and the orders bearing on them have now been collected in the volume before us for the use of those administering the Acts, and the result is a book which is not over-bulky and which will probably be consulted by all concerned As a matter of fact, it contains rather more than orders and regulations, as it includes the text of the two Insurance Acts with sections of other statutes affecting national insurance. A table shows the powers to make regulations and orders given by the Acts and states the regulations and orders which have been made A third division of the work consists of the regulations and orders made by the joint committee and the four bodies of commissioners These are set out in full but care has been taken to avoid the repetition which would be made by reprinting regulations which are practically the same, although made by different bodies of commissioners one set only being printed in such cases variations, if any being shown by footnotes An official or other person interested, when once he has become familiar with it, should find this official statement and tabulation of the law convenient and an aid in the performance of his duties Apparently it was intended originally to issue it at 6*s*, a price which has been printed on the cover but which has been wisely altered to a modest half a crown, for re issues are likely to recur from time to time in order to include fresh regulations and orders

2 Dr Tibbetts wanting information upon some questions arising in his panel practice which were not definitely answered in official literature or medical journals set to work to write a short treatise on the subject for the benefit of others That legal and medical writers had neglected the Insurance Acts as a subject for their industry we should hardly have ventured to suggest but it can assuredly be said that in the little work before us the author has supplied a want which many must have felt In it he gives us a sketch portrait of National Insurance in the working from the point of view of a member of a panel thoroughly conversant with the essential features of his subject By this we do not mean that details are disregarded but rather that the gist is given and that the reader is spared the citation of sections and regulations Those who want to know about a medical man's insurance work are not necessarily medical men themselves, but those in or about to enter upon panel practice are the most concerned and any of these can read what Dr Tibbetts has to say in an evening and then put it away for future reference when needed Such a course may particularly be recommended to critics who are prone to express pessimistic or hostile opinions upon the subject of National Insurance. The author treats the duties and perplexities of the panel doctor with a certain breezy cheerfulness and plain, good sense never forgetting the duties and obligations of the medical man towards his profession but at the same time not allowing his reader to forget that there are duties which the medical man owes to the State when he contracts to work for it under laws and rules framed for his guidance His observations upon the necessity

for strict accuracy in certification, coupled with his recommendation of the usefulness of "other remarks" where these are invited, are good examples of his tolerant attitude and of practical advice which may safely be followed by all concerned.

The Art of Anæsthesia

By P J FLAGG M D With 136 illustrations London and Philadelphia J B Lippincott Company 1916 Pp 341 Price 15*s* net

THIS book is good evidence of the attention and ingenuity that are being expended upon anæsthesia and all that pertains thereto by our American colleagues In his account of the history of the subject the author breaks no new ground, but he has the originality to introduce pictures of Homer, Du Bartas, and Shakespeare, personalities whom one does not somehow expect to meet on turning over the leaves of a treatise on anæsthetics Dr Flagg is original also in his description of general anæsthesia as being of two classes, complete and incomplete The complete he divides into stages of induction maintenance, and recovery, the incomplete has no stage of maintenance The author gives an excellent account of the causation of rigidity in the course of anæsthesia and of the correct treatment for its abolition He has much to say with regard to carbon dioxide and rebreathing—in fact, this occupies a separate chapter—and points out that cyanosis may have nothing to do with the presence or absence of CO_2, being entirely dependent upon the oxygen content of the blood Nitrous oxide and oxygen together with ether, given by a rebreathing system, appear to form the author's favourite method of anæsthesia With this he gives preliminary injections of morphine and atropine but disapproves of the morphine before using open ether With regard to chloroform he states that "in the light of present day pathology chloroform should cease to be used as an anæsthetic in obstetrics" To replace the light chloroform narcosis usually employed in these cases by prolonged nitrous oxide, with its necessity for expert and apparatus is at present, however, not within the bounds of practical politics Although there is perhaps, an excessive amount of space devoted to the machinery of anæsthetics, this book treats the whole subject in an enlightened spirit and deserves careful reading by every student of anæsthesia

A Handbook of Colloid Chemistry

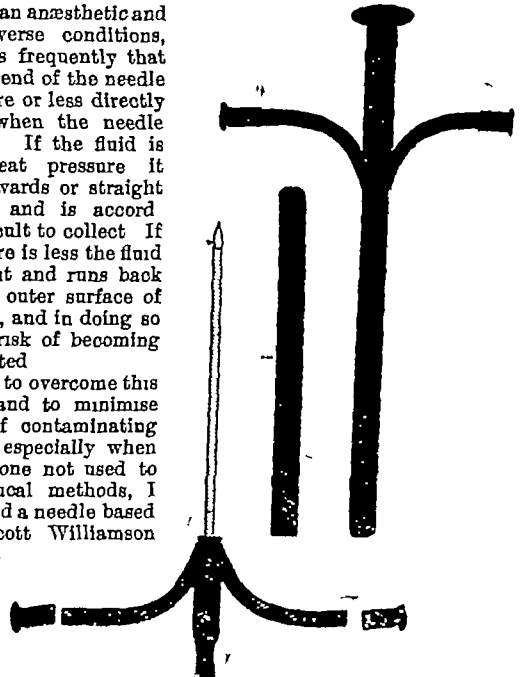
By Dr WOLFGANG OSTWALD First English edition Translated from the third German edition by Dr MARTIN H FISCHER (Cincinnati) with the assistance of RALPH E OESPER Ph D and LOUIS BERMAN M D London J and A Churchill Pp 278 Price 12*s* 6*d* net

WELL may the chief translator write "The day is past when the importance of colloid chemistry to the worker in the abstract or applied branches of science needs emphasis" And, as he points out, not only inorganic research but the organic also has chosen the colloid realm in which to manifest itself, living matter, whether of plants or animals and under normal or pathological conditions is chemistry in a colloid matrix, and so colloid chemistry comes to concern every botanist and zoologist, the physiologist and the practical man in medicine and surgery Dr Wolfgang Ostwald is a well known authority on the subject and he has carried out original investigations of the greatest significance and importance About seven years ago the original German edition was issued, but it has never been translated into English although it ran through three German editions We have, of course our own literature on the subject but nothing perhaps so complete or classic as the volume before us and yet the whole fabric of colloidal chemistry had its foundations well and truly laid by Thomas Graham as far back as 1861 There is a noble acknowledgment of the pioneer work in this book, and it was a happy conception to begin the new treatise on colloid chemistry with a good portrait of Thomas Graham as frontispiece The references to literature are very copious and form a valuable feature of the work Apart from physiological questions we shall hear if we mistake not, much more of the application of colloid chemistry to therapeutic practice in the near future This translation into English of a standard German handbook will therefore be welcomed and the translator and his assistants will earn the thanks of many investigators.

New Inventions.

AN IMPROVED TYPE OF NEEDLE FOR LUMBAR PUNCTURE

NEEDLES in common use for lumbar puncture are generally so constructed that the fluid emerges from an opening which has undergone considerable handling during the process of insertion of the needle and the sterility of which cannot be guaranteed In order to obviate this risk Dr G Scott Williamson devised a needle whose stilette was attached to a metal cap This latter fitted over the outer end of the instrument, and so protected the opening from contamination during manipulation of the needle into the spinal canal Where the patient can be anæsthetised and placed in a suitable position this type of needle answers quite well Where, however, lumbar puncture has to be performed without the aid of an anæsthetic and under adverse conditions, it happens frequently that the outer end of the needle points more or less directly upwards when the needle is *in situ* If the fluid is under great pressure it spurts upwards or straight outwards, and is accordingly difficult to collect If the pressure is less the fluid trickles out and runs back along the outer surface of the needle, and in doing so runs the risk of becoming contaminated



In order to overcome this difficulty and to minimise the risk of contaminating the fluid, especially when drawn by one not used to bacteriological methods, I have devised a needle based on the Scott Williamson type As is shown in the accompanying illustration (drawn to ½ scale) the needle is provided with two lateral arms whose lumen is continuous with that of the needle and whose free ends are protected by a slip-on metal cap When the needle is *in situ* the stilette is withdrawn till it comes to a stop at a point just distal to the junction of the lateral arms with the main stem of the needle The needle may be rotated *in situ* if necessary, so as to allow one of the lateral arms to project vertically downwards The metal cap protecting this orifice is now removed, and the fluid is easily collected in a sterile tube or bottle with the minimum risk of contamination When it is desired to introduce serum the metal cap can be removed from the upper arm and the rubber tube leading from the serum cannula slipped on in its place, or if it is desired to record the intrathecal pressure the upper lateral arm may be adapted for manometer purposes. Not only are the openings in the lateral arms protected from contamination, but the needle itself is protected when not in use by a screw on metal cap, so that the whole instrument can be carried about ready sterilised The needle is of good calibre, and is sufficiently strong to reduce the risk of breakage *in situ* to a minimum in cases where the patient is restive, while the lateral arms offer an excellent leverage in introducing or withdrawing the needle

The needle has been made for me by Messrs Mayer and Meltzer, London

Reading ROBERT DONALDSON

THE MERIEUX INSTITUTE

LYONS (FRANCE)

AND ITS BIOLOGICAL PRODUCTS

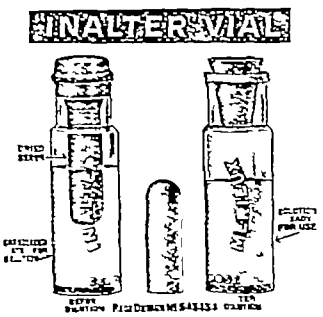
On his resignation from the Pasteur Institute in 1895 M Merieux founded his Institute at Lyons, and here, with very fine stud-farms and laboratories equipped with the most approved scientific apparatus, Serums, &c, are produced by the best known modern methods under the immediate supervision of M Merieux, these products are subject to inspection according to French law and have won a high reputation for reliability in every respect

It is quite obvious that the "**Inalter**" **Vial** is a most valuable acquisition to sero therapy, the advantages being that —

The **contents keep indefinitely**

When required, the preparation of the liquid serum is speedy, simple, and perfectly aseptic

The freshly prepared liquid serum has **full potency**



A FIG 1 B

Fig 1 A represents the INALTER" Vial—with U tube inside containing 1 gramme of dried serum and 9 c c. carbolised water (1 gramme dried serum = 10 c.c liquid serum) The rubber plug which seals the Vial and the U tube is withdrawn and after the contents of the tube have been emptied into the solution the plug is replaced in Vial and the contents quickly dissolve The freshly prepared serum is now ready for use as in Fig 1 B

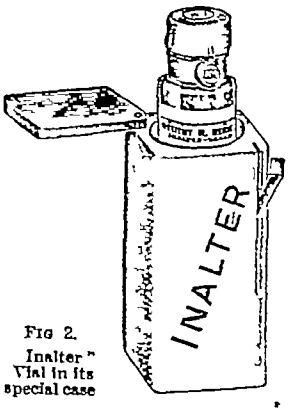


FIG 2. Inalter" Vial in its special case

The great difficulty the medical profession has to contend with in serum treatment is, that in the majority of cases the product is urgently required for immediate use, whilst, on the other hand, to keep serum for any length of time means running a serious risk as to its potency being considerably reduced or its even having become inert In order to overcome these difficulties the "**Inalter**" **Vial** has been devised, it is an extremely practical and ingenious arrangement, as will be seen by the accompanying illustration

Dangerous delays, so very frequent in procuring serum and administering treatment, is avoided

The prices of Serums in the "Inalter" Vial form are the same as for the usual liquid serum

The following serums may be obtained either in the "**Inalter**" **Vial** or in the ordinary liquid form —

ANTISTREPTOCOCCUS
ANTITETANIC
ANTIDIPHTHERITIC

WE HAVE SPECIAL FACILITIES FOR THE RAPID DELIVERY OF EXPORT ORDERS

Literature and Price List on request

THE ANGLO-FRENCH DRUG CO, Ltd (late M BRESILLON & Co),
GAMAGE BUILDING, HOLBORN, LONDON, E C

Telephone HOLBORN 1311 Telegrams "AMPSALVAS LONDON"

Other new Biological Products of the Merieux Institute are described overleaf.

THE MERIEUX INSTITUTE

LYONS (FRANCE).

In addition to the Serums and "**Inalter**" **Vial**, particulars of which are given on the previous page, several new preparations of the Institute are here described These are prepared under the same strict supervision and tests as all the other products from this source, and may be employed with every confidence

ANTI-DIPHTHERITIC TABLETS

are allowed to dissolve slowly in the mouth and so bring the active principle in direct contact with the mucous membranes The serum specially prepared for this form is **Polyvalent, Antitoxic,** and **Anti-microbic**—that is to say, **it is capable of destroying the bacilli and also of neutralising the toxins secreted by them**

These tablets are indicated as **prophylactics** where one is exposed to direct or indirect infection The serum fortifies the resisting power of the mucous surfaces and protects them also, in cases where the patient is subject to affections of the pharynx or of the respiratory tract

In cases of Diphtheritic Convalescence, where the bacilli are so persistently present in the exudation the tablets are exceedingly useful owing to their bactericidal properties

The Tablets are harmless and may safely be prescribed for children —In a paper read before the Lyons Medical Society (reported in the LYONS MEDICAL JOURNAL 31st May, 1913), 8 cases were cited, which had been treated by Anti diphtheritic tablets, 6 per day being administered in all the cases In 2 instances the bacilli in the buccal mucosa disappeared in 15 days 5 cases the destruction of the bacilli took 21 days and in 1 case 27 days

ANTI-DIPHTHERITIC SERUM for TOPICAL APPLICATION

—*This special form* contains a percentage of glycerine, which acts as a preservative, is antitoxic and bactericidal, thus forming a very excellent local application by painting or spraying in cases of **suspected Sore-throat** or **Coryza.**

Topical application is also indicated in **Diphtheritic Convalescence** to hasten the destruction of the bacilli in the mucous membrane of the throat and nasal fossæ

The preparation is applied by means of a cotton wool tampon or a brush but as painting of the nasal mucous surfaces is rather difficult the spray is used in these cases—such as stubborn coryza frequently caused by diphtheritic germs

The LYONS MEDICAL JOURNAL (31st May 1913) reports some cases from a paper read before the Lyons Medical Society, in which the nasal mucous membranes were infected These were treated with the **Anti-Diphtheritic Topical Application of Merieux** by means of a spray, six or seven applications per day the time taken for the disappearance of the bacilli was 15 to 21 days

PARA-TETANINE is a prophylactic dusting

powder an intimate mixture of a very active antitetanic serum with Dermatol Dermatol is combined with the serum in order to destroy the associated bacilli which play an important part in the evolution of tetanus

A great advantage of **Para-Tetanine** is that **it retains its activity indefinitely,** and **that it acts as a hæmostatic,** arresting the hæmorrhage which is so frequently in evidence after an injury

Para-Tetanine is applied to the wound—previously well cleansed—*as a dressing as shortly after the accident as possible.*

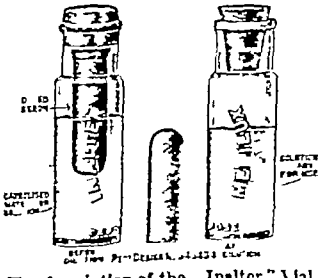
WE HAVE SPECIAL FACILITIES FOR

Literature and

THE ANGLO-FRENCH
(Late M BRESILLON & Co),
GAMAGE BUILDING,

Telegrams
ANTSALVAS LONDON

INALTER VIAL



(For description of the Inalter Vial see previous page)

RAPID DELIVERY OF EXPORT ORDERS

Price List on request

DRUG COMPANY, Ltd,

HOLBORN, LONDON, E C

Telephone:
HOLBORN 1311

THE LANCET.

LONDON SATURDAY, DECEMBER 9 1916

The Committee of Reference of the English Royal Colleges and the Problem of the Disabled Soldier

THE Committee of Reference of the English Royal Colleges, a statutory body under an Order in Council, and appointed to advise the War Office through the Central Medical War Committee, have reported in clear terms upon the problem of the dis chargeable disabled soldier The Committee have worked in association with the Central Medical War Committee, and the two bodies have acquired definite information that a large number of disabled soldiers have already been discharged from the Army as being unfit for further military service, their case will be made the subject of a further report, which is already drafted As the number of men thus "broken" will amount to many thousands before the war is over, the Committee urge that continued medical and surgical treatment should be organised for them at once, as success must depend on its being prompt It is the especial function of the Committee of Reference to safeguard the interests of the civil community by ascertaining that civilian hospital staffs remain during the war adequate to provide medical and surgical treatment If the disabled soldiers are discharged from military hospitals while requiring further treatment to render them useful members of the community, they will fall back upon the already depleted civilian hospitals, and a vast body of brave men, damaged while in the Army, may fail to obtain proper chances for return to civil life as useful citizens, capable in more or less degree of maintaining their independ ence If such a position should arise for lack of forethought and effective machinery it would be a lasting reproach to all of us

The Committee of Reference have confronted the situation squarely and agreed upon certain general principles They hold that a considerable proportion of the disabled soldiers require con tinued institutional treatment and that an essen tial condition of success in any scheme for such treatment is that the patient be thoroughly under discipline As no form of discipline can adequately replace military discipline, they state that the disabled soldiers should not be discharged from the Army until a specially constituted board of medical experts has decided that no further institutional treatment will improve their condi tion, but they allow that such treatment cannot be extended beyond some maximum limit of time to be determined by the military authorities These principles or conclusions, have been arrived at by consideration of the probable number of men concerned, the classes under which their cases would fall, and the possibility of any substitute for military discipline which would secure with certainty the continued treatment The terms of the report of the Committee of Reference are so clear and so far reaching that it must neces sarily move the military authorities either to undertake the task of the continued treat ment of the disabled soldier or to render every assistance to some alternative scheme, such as the setting up of convalescent camps, similar to military convalescent camps But the number of these would have to be extended as occasion required, for no data are at present forthcoming as to the number of men already dis charged who would be benefited by continued treatment, while the uncertain duration of the war makes speculation as to the ultimate figures valueless The Memorandum attached to the report considers the problem under two heads, premising that the wounded men are allowed to remain in the Army for some period. The first of these heads, the provision of institu tional treatment for those who can only be satisfactorily treated in this way, is discussed at greater length, the second, the provision of temporary supervision for those who can be treated at home, is dealt with by the obvious statement that this will have to be left to local activities, assisted by the advice of local practi tioners A classification is then made of medical and surgical cases which should be treated in in stitutions, with subsequent transference to homes where attention can be given until the maximum benefit has been obtained, and the Committee sug gest that the centres for the convalescent patients should take the form of annexes to the existing military convalescent camps In regard to cases of neurasthenia and shell shock other than mental cases, they point out that special treatment under military control may be required, but that it should not be given in camps specialised for the purpose, such patients deriving benefit from distribution among others Mental cases the Committee consider require institutional treatment under the care of specialists, while tuberculosis cases present the difficulty that in one group the pathological mani festations may be due to the recurrence of definite disease present before enlisting, while in another group the disease may have been acquired on active service The Committee hold that no soldier suffering from tuberculosis should be discharged from the Army, but that all these men should be treated under military discipline until the best possible has been done, with the admission that in prolonged cases the military authorities would have to prescribe some time limit for their responsi bilities

The conclusions of the Committee of Reference, therefore are that dischargeable disabled soldiers should be kept in the Army until they have gained all the good that can be expected from institutional treatment administered over some maximum period, that they should be retained, in great majority, in military hospitals until they are fit to be discharged to convalescent camps, that annexes to these camps

should be set up where the cases could be treated by the officers of the Royal Army Medical Corps with civilian help They consider that in the convalescent camps the treatment should be as far as possible the same as that of soldiers who are expected to return to active duty, save that technical and mechanical treatment should take the place of military exercises, while they think that special boards should be set up to supervise not only general cases, but ophthalmic, neurasthenic, epileptic, and mental ones The Memorandum deals only with the treatment of soldiers who have not as yet been discharged from the Army, the case of the numerous soldiers already discharged and disabled is being dealt with separately The Committee state clearly that they cannot contemplate that the military authorities will refuse to undertake the task of the treatment of disabled soldiers, and point out the objections to the only alternative way of meeting the situation—namely, the setting up of a number of new camps similar to the military convalescent camps

The Metropolitan Water-Supply and the War Chlorination Adopted

Two valuable and interesting documents were issued last week by the Metropolitan Water Board One is the Tenth Annual Report on "The Results of the Chemical and Bacteriological Examination of the London Waters for the Twelve Months ended 31st March, 1916," by Dr A. C HOUSTON, Director of Water Examination, Metropolitan Water Board, and the other is "The Twelfth Report on Research Work," by the same author Both reports refer to the influence of the war on metropolitan water administration To begin with, Dr HOUSTON introduces his tenth annual report by remarking that the results of the examination of the London waters over so considerable a period would in ordinary circumstances have called for a long and detailed report Under existing conditions, however, he has thought it desirable to place only the chief facts on record in a series of tables, which are, of course, available for future reference This plan has resulted in the curtailment of the number of pages from 61 (last year) to about 40 this year The war has brought on the staff the inconveniences of many changes, but the work of conducting the examinations has not been allowed to suffer Dr HOUSTON acknowledges this to be due to the loyal efforts of the remaining nucleus of his original staff and to the adaptability shown by those who are acting as temporary substitutes This at a time when the maintenance of the purity of the London water supply is more important than ever is very satisfactory, for one effect of the war may be to render water supplies exposed to pollution more dangerous than previously, owing to the increased number of disease "carriers" During the current year the general quality of the water supply has not deteriorated, although the extra pressure of work thrown on the engineering department, consequent upon the war, has been serious, and there has been trouble with algal growths

A very important announcement is made in the Twelfth Report on Research Work Certain events of a serious nature, writes Dr HOUSTON, arose in connexion with the Water Board's supply of coal Owing to the war, the price of coal advanced not only to an unprecedented extent, but it became imperative, in the national interest, to reduce its consumption to the lowest practicable limit Now the raw river water is circulated through storage reservoirs in order to improve its quality by sedimentation, but the continuous pumping of 70 to 80 million gallons daily of raw Thames water into the reservoirs involves the expenditure of a very large sum of money on coal An alternative and much cheaper plan is to leave the reservoirs full and to pass the river water direct on to the filter beds after it has undergone a process of treatment which has proved to purify the raw water to a higher standard than is reached in stored water. This treatment consists in adding a definite quantity of chloride of lime (bleaching powder) to the raw water The result has been to produce a water of as great or greater bacteriological purity than that of water stored in the Staines reservoir, and during the summer months 75 million gallons per day were so treated As regards cost, less labour is required for chlorination than for pumping With a dose of 0 5 part of available chlorine per 1,000,000 parts of water (or 15 lb of chloride of lime of 33 per cent strength per 1,000,000 gallons) the war cost of the material is calculated at about 3s The war cost of coal to pump 1,000,000 gallons would be about 13s, so that the saving per day on, say, 75 million gallons of water would be £262 10s per week Dr HOUSTON regards these results as most gratifying, but, as he points out, the season of the year must be borne in mind, and similar results can hardly be expected during the winter months, when the river water becomes heavily charged with suspended matter That the London water has received chemical treatment will surprise many public health authorities, and it is doubtful whether the plan would have been adopted if it had not been for the circumstances of the war But Dr. HOUSTON shows that a large sum of money has been saved without detriment to health, and, in the second place, the national interests have been served by reducing largely the consumption of coal. Some such treatment on a practical scale was anticipated, for this was indicated by the researches on raw Thames water which have been carried out for some time in the laboratories of the Metropolitan Water Board

CENTENARIANS—The death has recently been announced at Norwich of Miss Nancy Baillie at the age of 102 Her father was first cousin to Dr Matthew Baillie (physician to Queen Caroline) and to Joanna Baillie the dramatist and poet The mother of the physician and the author was sister of John and William Hunter It is interesting to note that though the birth of Joanna Baillie was premature she lived for 88 years while her sister died at the age of 100—The death is also announced of Mary Anne Vyse, at Enfield Workhouse Infirmary, on Nov 23 h aged 104

Annotations.

Ne quid nimis.

THE DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH

THE Government have decided to establish a separate Department of Scientific and Industrial Research for Great Britain and Ireland under the Lord President of the Council, with the President of the Board of Education as Vice President They have also decided, subject to the consent of Parliament, to place a large sum of money at the disposal of the new department to be used as a fund for the conduct of research for the benefit of the national industries on a coöperative basis The Board of Inland Revenue have decided, with the approval of the Chancellor of the Exchequer, that no objection shall be offered by their surveyors of taxes to the allowance, as a working expense for income tax purposes, of contributions by traders to industrial associations which may be formed for the sole purpose of scientific research for the benefit of the various trades, and the allowance would be equally applicable as regards traders' contributions specifically ear marked to the sole purpose of the research section of an adapted existing association In both cases the allowance would be subject to certain conditions—e g, the association or the research section to be under Government supervision and the traders' contribution to be an out and out payment, made from his trade profits and giving him no proprietary interest in the property of the association

In order to enable the department to hold the new fund and any other money or property for research purposes, a Royal Charter has been granted to the official members of the Committee of the Privy Council for Scientific and Industrial Research, under the title of the "Imperial Trust for the Encouragement of Scientific and Industrial Research" The Trust is empowered "to accept, hold, and dispose of money or other personal property in furtherance of the objects for which it has been established, including sums voted by Parliament to that end.' The Trust can take and hold land and can "accept any trusts, whether subject to special conditions or not, in furtherance of the said objects" A substantial gift has already been made to the Trust by two members of the Institution of Mechanical Engineers for the conduct of a research in mechanical engineering to be approved by the department in the hope that this example will be followed by other members of the institution

Mr H Frank Heath, C B, has been appointed permanent secretary of the new department, to whom all correspondence should be addressed until Dec 31st next at the Offices of the Board of Education, Whitehall On and after Jan 1st, 1917, all correspondence should be addressed to the Secretary, Department of Scientific and Industrial Research, Great George street, Westminster, S W

THE MENTAL STRAIN OF INTERNMENT

THE statement in a recent Berlin telegram that 1 in 10,000 of all prisoners of war in Germany have committed suicide confirms the anxiety which has been widely felt regarding the mental effect of confinement on our own prisoners of war and interned civilians Dr zum Busch, in an article from which we have already quoted made the frequent mental breakdown of the interned German civilian in this country the occasion of reproach to our methods But as much doubtless depends on the mental condition and equipment of the prisoners as on the conditions of their confinement In this connexion it is consoling to learn from Dr Herbert Bury, Bishop for North and Central Europe, that during his visit at Ruhleben last week he found no evidence of ennui or mental deterioration among the large population there and only 60 to 70 cases of mental breakdown as the product of two years' confinement, these being isolated in a sanatorium half an hour distant from the internment camp under the care of Dr Weiler, a well known alienist This reassuring result Dr Bury attributes to the splendid spirit of our interned men as well as in some measure to the means taken to stimulate their mental life Regular classes of various kinds are held There is a well equipped scientific workroom and biological laboratory, and Dr Bury's allusion to the special need at present of a spectroscope emphasises the high level of the work being done The whole is in marked contrast to the terrible mental depression once prevailing at Gardelegen and Wittenberg as a result of hardship and ennui

THE WHIPPING CRAZE

THE alarming increase of juvenile crime in our large cities during the past few months has given rise to a widespread demand for the use of sterner methods in dealing with youthful offenders, and it has been urged with special insistence that an effective means of counteracting this growing evil would be to enlarge the powers of courts of summary jurisdiction so as to extend the whipping age from 14 to 16 years Proposals of this drastic character are peculiarly congenial to the moral atmosphere of the moment, and it would not, therefore, be quite safe to assume that the warm support which this proposal has received from magistrates and other officials, and from a section of the press, is necessarily, or even probably, the outcome of cool and dispassionate judgment In any case, it is clearly desirable, before the adoption of so considerable and so reactionary a change in penal methods, that there should be some definite evidence to connect the present outbreak of disorder with conditions on which corporal punishment may be reasonably expected to exercise a real influence So far, it can hardly be said that any evidence of this sort is forthcoming *Prima facie*, indeed, it would rather appear that the more obvious causes of the growth of juvenile crime would not be affected at all, or would be affected in an undesirable way, by the freer use of whipping It is as true of the youthful offender as it is of the adult criminal, that the certainty or the strong probability of detection is a far more effectual deterrent than any severity of punishment And no fear of the birch will prevent the young hooligan from recognising that under present conditions, with darkened streets and a depleted police force, his chances of being caught are fairly small The threat of whipping would be equally ineffectual against what is probably a more frequent and more potent cause of youthful misconduct—namely, the spirit of adventure engendered by the war This spirit would not be cowed by the fear of a whipping, it is much more

likely, indeed, that the added element of physical risk would act as a stimulus rather than as a deterrent, and that inclusion in the police court "casualty list" would merely give the victim some thing of the glory of a wounded hero In this connexion it has also to be borne in mind that judicial whipping, whatever be its value as a corrective of criminal tendencies, may in many cases have permanent psychic effects of a peculiarly undesirable kind, especially when the punishment is inflicted on boys about the age of puberty This is an aspect of the question about which advocates of corporal punishment generally know very little, and they may therefore profit by perusing the sensible remarks which Mr H S Salt devotes to the point in his recently published essay on "The Flogging Craze" (George Allen and Unwin, Limited, London, 1916, price 2s 6d net) They may also derive some benefit from pondering the other arguments which Mr Salt has set out in his interesting, if somewhat polemical, statement of the case against flogging These arguments do not, perhaps, establish all that the author would infer from them, but they will certainly go far to strengthen the view that the remedy for juvenile lawlessness is to be sought, not in the rehabilitation of the somewhat discredited method of the birch, but in the direction into healthier channels of the exuberant and adventurous energies of boyhood The best way to cure the boy criminal is, if possible, to turn him into the Boy Scout

INFANTILE MORTALITY IN BRITISH COLUMBIA

IN British Columbia the deaths of infants under one year are mentioned in each of the two latest annual health reports, and they are noticeably few, giving very low figures of infantile mortality, 45 in 1914 and 57 in 1915 Of a province so extensive, larger than Spain, with a population of approximately one person to the square mile, minute accuracy in statistics cannot be predicated but deaths are less likely to go unregistered than births, so the infantile mortality will not be less than that shown on the records A correspondent in British Columbia has sent us an interesting comparison Taking the Registrar General's Report for 1911, he compares the figures for England and Wales in that year with the latest that have come from British Columbia British Columbia has roughly the population of Warwickshire outside the county boroughs, and a higher birth rate though fewer women While of its chief cities Vancouver may be compared with Plymouth as regards size, and Victoria with Chester Then we see —

—	Population.	Births registered	Deaths under one year	Infantile mortality
1915				
British Columbia	395 571	10 270	590	57
Vancouver	120 000	2,630	175	65
Victoria.	40 000	960	47	49
1911				
Warwickshire	394 160	9 547	1 076	113
Plymouth	112,'46	2,644	378	143
Chester	39 047	937	102	109

These figures show how low is the infantile mortality which prevails throughout British Columbia as a result of its large open spaces and the moderate, equable temperature of its more densely populated regions Again, the mortality from various groups of diseases was markedly lower in British Columbia in 1915 than in England and Wales in 1911 Thus, the Registrar General's first group (Table XXVIII), common infectious diseases, in England and Wales 7 57, gave in British Columbia a mortality of only 2 19, for Group II tuberculous diseases, the figures were 4 15 and 1·28 and for Group III, diarrhœa, 39 and 5 8, less than one sixth Consequently, both by reason of its large birth rate and its small infantile mortality British Columbia would appear able to rapidly increase its population once the war has ended

THE MEDICAL DIRECTORY

THE numerical summary of the medical profession in the new Medical Directory for 1917—the seventy third annual issue—shows a gratifying increase for 1917 in the number of medical practitioners possessing a registrable qualification in the British Isles 309 more names appear than a year ago, when there was actually a drop of 2 on the numbers of the previous year The additions involve an increase of eight pages in the size of the volume, which is otherwise substantially unaltered The summary of the principal laws affecting the medical profession contains a useful appendix dealing with the legislation of the past year The honours list, of course, occupies more space than a year ago, and now includes 18 holders of the Victoria Cross and 245 of the Military Cross The additions in the Directory itself bring it fully up to date with the exception of titles of military rank, which are subject to frequent change We are glad to see that the section of Practitioners Resident Abroad is retained, although its compilation must involve special difficulties at the present time

THE jubilee celebration of the New Hospital for Women, Euston road, is to take place next Tuesday, Dec 12th, at 2 45 P M Sir Alfred Keogh, Mrs Scharlieb, Sir John Bland Sutton, and Dr Louisa Garrett Anderson are expected to speak

AT the meeting of the Medical Society of London on Monday next, at 8 30 P M, demonstrations illustrating the principles of the re education of the wounded will be given Mr Arnold Lawson will detail the work being done for the blind at St Dunstan's and Mr F Derwent Wood, A R A, will describe 'facial restoration." Dr J B Mennell will discuss limping and the re education of walking, and Mr McMahon the treatment of shell shock stammering

CHILD WELFARE WORK IN IRELAND —The Local Government Board for Ireland have not formulated any complete scheme of maternal and child welfare work leaving it rather to the various local authorities to submit local schemes for their approval A sum of £5000 has been earmarked for this purpose in Ireland At the recent annual meeting of the Bangor District Nursing Society, Sir John Byers suggested two schemes one applicable to cities the other to smaller towns and rural districts In the first scheme existing maternity hospitals were to be subsidised to form maternity centres with the opportunity of research work and facilities for pathological examinations. Schools for mothers should be the other agency in this scheme In the second the existing nursing associations were to form the basis of the scheme, with the assistance in turn of the doctors of the district and the retention of a few beds at cottage hospitals for serious cases No scheme has yet been completely arranged for Belfast, Cork, or Dublin

THE GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION

WEDNESDAY NOV 29TH

THE Council resumed its sittings at its offices, 44, Hallam street, W, Sir DONALD MACALISTER, the President, being in the chair

Penal Cases

A case was taken which was adjourned from May 25th—Daniel Evans Powell, registered as of 101, High street, Tooting, S W, M.B, C M, 1894, U Glasg, who had been summoned to appear before the Council on the following charge —

That being a registered medical practitioner you by your assistance knowingly enabled one Jenny Walter a woman not certified under the Midwives Act 1902, to attend women in childbirth under cover or pretence that such women were attended or to be attended by you or by her under your direction thereby enabling the said Jenny Walter in contravention of the said Act to practise as if she were certified thereunder And that in relation thereto you have been guilty of infamous conduct in a professional respect.

The complainants were the Central Midwives Board

At the conclusion of the proceedings of the General Council on May 25th the President announced its decision as follows —

Mr Daniel Evans Powell The Council has carefully considered the charge made against you which in effect was that you had by your assistance knowingly enabled a woman not certified under the Midwives Act 1902, to attend women in childbirth under cover or pretence that such women were attended or to be attended by you or by her under your direction thereby enabling her to practise as if she were certified

The facts alleged against you in the charge the Council has found to be proved

The Council takes a very grave view in the public interest of the danger which arises from medical practitioners lending their names for such a purpose and covering the practice of unqualified or uncertified women under whatever pretext they practise midwifery or otherwise attend and treat women in labour But in order to give you an opportunity of reconsidering your position in relation to this matter the Council has postponed judgment in your case till the next session in November of which you will receive due notice You will then be required to attend and to produce testimony from your professional brethren as to your character and conduct in the interval

Mr Powell attended, and was represented by Mr Philip Webster Butcher solicitor

The Central Midwives Board were represented by Mr Julius Bertram, their solicitor

Mr BUTCHER, on behalf of Mr Powell, submitted testimonials as to character from a number of registered medical practitioners and expressed regret for Mr Powell's past conduct

Mr BERTRAM stated that as a result of his inquiries he had ascertained that the London County Council had no further evidence to bring before the Council and he went on to say that he had heard with pleasure the nature of the communication addressed to the Council on behalf of Mr Powell

The PRESIDENT announced the decision of the Council as follows —

Mr Powell: I have to announce to you that the Council has carefully considered the evidence which you have sent in proper time, as to your conduct in the interval and the assurance which you have given as to your conduct in the future and has not seen fit to direct the Registrar to erase your name from the Medical Register

The Council took up the consideration of the case of Thomas Dixon Cook, registered as of Glendon Torquay, M B, C M 1879, U Glasg who had been summoned to appear before the Council on the following charge —

That being a registered medical practitioner you by your assistance knowingly enabled Mrs. Eliza Martin whose name has been removed by the Central Midwives Board from the roll of midwives and Mrs E Beare and Mrs Lamble neither of whom was certified under the Midwives Act 1902, to attend women in childbirth under cover or pretence that such women were attended or to be attended by you or by her under your direction thereby enabling the said Mrs Eliza Martin Mrs E Beare and Mrs Lamble in contravention of the said Act to practise as if they were certified thereunder And that in relation thereto you have been guilty of infamous conduct in a professional respect

The complainants were the Central Midwives Board

Mr Cook attended

The Central Midwives Board were represented by Mr Julius Bertram solicitor

Mr BERTRAM in opening the case explained that the complaint arose out of prosecutions before the magistrates of Torquay in respect to the employment of uncertified women as midwives The Council had always taken the view that an offence had been committed where a practitioner assisted an uncertified woman attending maternity cases to conduct her practice The allegation here was that none of the cases were Mr Cook's cases at all In this case there were many features common to other complaints of a similar nature that had been brought before the Council The patients varied in their accounts as to whether the services of Mr Cook were arranged for beforehand, but in the documentary evidence he had submitted Mr Cook went so far as to say that he never at any time had the intention of being present at the actual delivery

Several witnesses were called by the complainants Some of these were women, who stated that they had been attended at their confinements by one or other of the uncertified women in question Mr Cook, they said, had visited them afterwards and had signed maternity benefit certificates

Mr COOK made a statement on his own behalf He said that his work was in a parish having many poor people They were unable to pay the fee for a medical man and a midwife and there had been a scarcity of certified midwives He had been asked by a district visitor and others to look after these poor women The understanding had been that the women who were attending the confinements were to send for him if he was needed They could be thoroughly depended upon He never had had any fault to find with them He had seen the patients afterwards They were poor and he did not charge them a maternity fee He only charged a visiting fee

The PRESIDENT announced the decision of the Council as follows —

Mr Cook: The Council has very carefully considered the charge made against you which as you know was in effect that you had by your assistance knowingly enabled women not certified under the Midwives Act, 1902 to attend women in childbirth under the cover or pretence that the women were attended by you, thereby enabling them to practise as if they were certified The facts alleged against you in the charge the Council has found to be proved The Council takes a very grave view in the public interest of the danger which arises from a medical practitioner who lends his name for such a purpose and covers" the practice of unqualified or uncertified women under what ever pretext they practise midwifery and whatever may be his personal opinion as to their skill and capacity to attend and treat women in labour But in order to give you an opportunity of reconsidering your position in relation to this matter the Council has postponed judgment in your case till the next Session in May of which you will receive due notice You will then be required to attend and to produce testimony from professional brethren in your district as to your character and conduct in the interval.

The Council adjourned

THURSDAY, NOV 30TH.

The Council resumed its sittings and the consideration of further penal cases

FRIDAY, DEC 1ST

The Council continued the hearing of

Penal Cases

The first to be considered was the case of Edmond Heskin, registered as of 27 West-street, Leeds, M B, B S 1900, R U Irel, who had been summoned to appear before the Council on the following charge —

That being a registered medical practitioner you were at the Leeds assizes commencing on July 13th 1916, convicted of the following felony namely of unlawfully killing one Blanche Amy Pantrey and sentenced to 12 months imprisonment in the second division.

Mr Heskin did not attend nor was he represented

The PRESIDENT in intimating the decision of the Council said I have to announce that Edmond Heskin having been proved to have been convicted of the felony alleged against him in the Notice of Inquiry the Registrar has been directed to erase his name from the Medical Register

The Council considered the case of Henry Percy Jelley, registered as of 174, High street, Homerton, N.E, L M S S A Lond 1910, who had been summoned to appear before the Council on the following charge —

That being a registered medical practitioner you were on July 18th 1916 convicted at the Central Criminal Court of the following felony —namely of unlawfully killing one Elizabeth Caroline March and sentenced to three years penal servitude

Mr Jelley did not attend nor was he represented.

The PRESIDENT intimated the decision of the Council as follows I have to announce that Henry Percy Jelley having been proved to have been convicted of the felony alleged against him in the Notice of Inquiry, the Registrar was directed to erase his name from the Medical Register

Straits Settlements Medical Qualification

The Executive Committee reported that it had adopted a resolution to the following effect —

That any person who holds the L M S diploma of the King Edward VII Medical School Singapore granted after examination in Medicine Surgery and Midwifery and who is entitled by law to practise Medicine Surgery and Midwifery in the Straits Settlements shall be entitled to be registered in the Colonial List of the Medical Register provided he satisfies the Registrar of the General Medical Council regarding the other particulars set forth in Part II of the Medical Act 1886

Japanese Qualifications

The Executive Committee also reported that it had adopted a resolution—

That any person who holds the degree of Bachelor of Medicine (Igakushi) of any Government or prefectural special Medical College or of a private special Medical College designated by a Minister of Education of the Empire of Japan shall be entitled to be registered in the Foreign List of the Medical Register

Pharmacopœia Committee

A report was received from the Pharmacopœia Committee to the effect that the number of copies of the British Pharmacopœia 1914, which were sold by the publishers between May 20th, 1916, and Nov 25th, 1916 was 1635 The total number sold since Jan 1st, 1915, is thus about 27,035 copies Of the second issue, published in May, 1915, about 1450 copies remained in stock at the present date A third issue would probably be required in 1917 The committee recorded with gratification that His Majesty has been pleased to confer the honour of knighthood upon Sir Nestor Tirard, senior editor of the Pharmacopœia and secretary to the Pharmacopœia Committee for 20 years

Anatomy Acts Committee

Dr Elliott Smith, Dr Dixon and Dr Symington were added to the Anatomy Acts Committee

Preliminary Examination in General Knowledge

The Education Committee presented a report upon the compulsory inclusion of Latin in the preliminary examination in general knowledge The first part of the report, which led to an interesting debate, became the subject of a motion which would make Latin an optional subject for students who have passed well standardised preliminary examinations This motion was carried, but an amendment referring the second part of the report, dealing with the retention of Latin as an obligatory subject of the junior entrance examination, back to the Education Committee was carried

Recommendations

The Council agreed to the adoption of the following recommendations by the Education Committee re stating its conditions of recognition —

I That the Regulations prescribed by the Council for the recognition of examinations as published on pages 7 to 11 inclusive of the 'Regulations of the General Medical Council in regard to the Registration of Medical and Dental Students shall be altered so as to read as follows viz. —The following Regulations are subject to alteration and addition from time to time.

1 It shall be delegated to the Education Committee to prepare and issue from time to time a list of examining bodies whose examinations in general education fulfil the conditions of and are specially recognised by the General Medical Council

2 The following examinations have been approved by the Council (a) The final examinations for the degrees in arts and science of any University of the United Kingdom or of the British Dominions (b) All examinations which are accepted for matriculation in the Faculties of Arts and Science in any University of Great Britain, provided the pass-certificate includes English, mathematics and at least two other subjects named in the following list: Latin Greek, Arabic Persian French German Spanish Italian, Russian or any approved modern language history geography natural philosophy or physics chemistry biology physical geography and geology (c) All examinations not included under the foregoing section (b) which are accepted for matriculation in the Faculty of Medicine in any University of the United Kingdom provided the examination is completed at not more than two periods of examination and that the pass certificate includes English with geography and history mathematics Latin, and at least one other subject named in the following list Greek, Arabic, Persian French German Spanish Italian Russian. (d) The Council may grant special recognition to the following examinations not included under the foregoing sections (a) (b) and (c) :— (1) The final examinations for the degree in arts and science of any specially recognised foreign University (2) Examinations conducted by approved examining bodies within the United Kingdom under the provisions set forth in the foregoing section (c)

3 Examinations conducted by approved Examining Bodies out of the United Kingdom under the provisions set forth in the foregoing section (c) and under such other conditions as the Council may impose in each case

II That nothing in the previous recommendation shall affect Ireland and that the rules hitherto in operation as published in the Council's Regulations for Registration of June, 1916 shall continue in force in that country

Dental Education and Examination Committee

Mr TOMES presented a report from the Dental Education and Examination Committee dealing with matters of detail He observed that there was a shortage of dentists in this country The report was received

The PRESIDENT announced that the Council had considered *in camerâ* a report from the Dental Education and Examination Committee in regard to the dental curriculum

Public Health Committee

Sir J W MOORE presented a report from the Public Health Committee dealing with the diplomas in Public Health granted by various licensing bodies He explained that the report was an interim one The report was remitted to the committee for completion and comment

Apothecaries' Hall of Ireland

Dr TAYLOR presented the report of the Examination Committee, which had reference to the various matters relating to the Apothecaries' Hall of Ireland He moved that the Council adopt the recommendation of the committee to the effect—

That the Irish Branch Council be authorised to appoint for a period of one year a deputy to attend and be present on behalf of the General Medical Council at the professional examinations held by the Apothecaries Hall for the purposes set forth in Sect 18 of the Medical Act, 1858 that the Deputy so appointed present to the Council a report on the general character of such examinations and that he be paid a salary of £50 for the year in question.

Sir J W MOORE seconded

Dr MAGENNIS moved as an amendment—

That the inspections of the examinations of the Apothecaries Hall of Ireland by deputy or other person be suspended until such time as the inspections of the other licensing bodies which have been suspended for some years be resumed

He contended at considerable length that the Apothecaries' Hall of Ireland had been unjustifiably harassed in regard to their examinations

The amendment did not find a seconder

The motion of Dr Taylor was agreed to

The session then concluded

PARIS

(FROM OUR OWN CORRESPONDENT)

Adherent Cicatrices Freed without Operation

THE persistence of adherent cicatrices in gunshot wounds is a frequent cause of impairment to the function of muscles, blood vessels, and nerves, and may require operative interference Dr Bourguignon and Dr Chiray have described at the Medical Society of Hospitals in Paris a proceeding which appears to solve this difficult problem, and consists in ionisation with potassium iodide Experimental research as well as actual cases treated have already shown that the method produces rapid liberation of muscles and nerves, and probably also of the blood vessels

Provisional Artificial Limbs

Dr Svindt, the Danish head of the Danish hospital in Paris, introduced some time ago the use of a cardboard leg for amputation cases It consists of a long hollow cone attached at the smaller end to a short wooden cylinder provided with a rubber disc, the whole resembling a big megaphone The leg is made of two long trough like pieces of cardboard cut to the measure of the sound limb, tapering below and embracing the stump above The pieces fit one into the other, the stump is inserted, and silicated bandage wound round the whole from top to bottom Above the margin of the hollow interior is rounded off with cotton wool, it is horizontal and surrounds the limb at about the level of the perineo-crural fold, the base of the ischium, and the lower crest of the great trochanter, resting upon the ischium Equilibrium is ensured by a broad strap attached in front to the upper part of the cone slightly on the internal face, passing over the opposite shoulder and fixed to the cone behind The end of the stump is free in the cone and does not rest on any platform, the apparatus can hence be adapted to stumps not quite soundly healed The weight of the limb varies from 1 3 to 1 7 kg —round about 3 lb It can support a weight of 200 kg, the price is between 5 and 6 frs, and it can be delivered 3 to 4 days after the measure has been taken From the second day of trial—in some cases from the first—the patient can dispense with his crutches, using only a stick with rubber end The great advantage of the apparatus is that it permits an amputation case to walk two or three months sooner than with his permanent artificial limb, he therefore does not have to watch his stump acquiring the faulty position which it always does when crutches preclude its proper use

The Susceptibility to Cold of Tropic-dwellers

M Bussières médecin major of colonial troops has made an investigation into the way in which soldiers coming from tropical Africa generally manifest their special susceptibility to cold He found that 20 per cent of the bed patients in camp at St Raphael Fréjus and at the Senegalese hospital at the Galliéni camp had albumin in their urine, showing a renal affection In pneumonic cases the percentage rose to 100 In these men there exists a condition of the kidney produced by cold which facilitates a renal infection with the pneumococcus Black soldiers, according to M Bussières, are incapable of resisting a winter in the trenches and must be transferred to the South during the bad season

A Military Sanatorium

M Justin Godart, Under Secretary of State for Hygiene has just officially opened the Sanatorium of Beau Soleil for the reception of military convalescents with early tuberculosis The sanatorium, which owes its origin to two generous legacies, is situated on a wooded hill, with full south aspect, looking out over the Isles of Hyères

Dec 4th

THE CONTROL OF VENEREAL DISEASES

SOME PRACTICAL POINTS IN THE EXAMINATION OF SPECIMENS FOR DIAGNOSIS IN VENEREAL DISEASES

II.[1]

THESE brief notes have been written by Mr CLAUDE H MILLS assistant surgeon to St Paul's Hospital for Skin and Genito-urinary Diseases, medical officer in charge of the syphilis wards at Rochester Row Military Hospital, 1914–16 Their object is to help those who have not hitherto had a wide experience in this specialty to arrive at an early, rapid, and accurate diagnosis

(a) Fresh Detection of Gonococci

(i.) In the case of a smear preparation obtained from an early case of acute urethritis when a mixed infection is improbable —i.e. during the first week or ten days—staining with Kühne's methylene-blue for two to three minutes provides a rapid and accurate diagnosis the formula being Methylene-blue 1 5 gm , abs alcohol 10 c.c dissolve for 24 hours and add 5 per cent ac carbolici 100 c c

Precautions—Do not overheat slide in fixing Always apply the stain through a filter paper With this method a positive diagnosis is only possible when the specimen exhibits very numerous intracellular diplococci with their adjacent borders concave

(ii.) In specimens obtained from a urethritis at a later date when the infection is likely to be mixed and always in examining urinary deposits a differential stain is essential and for this Gram's method, with its several modifications is indispensable

Precautions—As above Avoid delay in examining a specimen of urine which should always be freshly passed. Gonococci become swollen and rounded if allowed to remain too long in the urine closely resembling staphylococci which latter tend to become Gram negative under these circumstances

(iii.) The most reliable method of all is that of isolation by culture, the most suitable medium for gonococci being blood-agar (or Gurd's and Wertheim's serum media) In all cases possessing the possibility of litigation corroboration of the diagnosis by culture should never be omitted.

Precautions—(a) Special care should be taken to obtain the specimen as free from contamination as possible by the methods previously described (b) Transfer specimen direct to warm medium (37 C) and replace same in incubator permitting a minimum of cooling down

(b) Method for the Detection of the S pallida

(i.) *Ground stains*—In this method the material for the examination is well mixed with an equal quantity of the stain (one minim of each) at one end of the slide and then drawn out as a film. The colourless spirochætes are distinguished standing out in a stained background

Burri's Indian ink method—The ink that I have found most satisfactory for this work is the Chin Chin brand (Gunther and Wagner) and at the time I was relying chiefly upon this method[2] I found that the addition of tr iodine or to the ½ oz gave a better film with cleaner definition

Technique.—The clean slide upon which the film is drawn should be free from scratches and be polished with silk The edge of the slide used for the "drawing" should have irregularities previously removed by gently grinding upon an oil-stone Do not make the film too thick removal of excess of fluid with filter paper before "drawing out" will prevent this Specimens should include a minimum number of blood cells

Hutchison's collargol method—As above using 5 per cent collargol in place of the Indian ink. This gives a less granular background but of a lighter colour (red brown)

Congo red method—As above using 2 per cent Benian's Congo red The dry film is then washed with 1 per cent solution of HCl in abs alcohol The background is a homogeneous light blue Spirochætes stand out faintly by contrast but when visible their shape is well defined

Precautions—If the specimen is taken from the mouth remember that S pallida is indistinguishable from S microdentium by these methods if from the glans penis or inner surface of the prepuce S gracilis is usually present Some of the fine varieties of this spirochæte are very apt to be misleading When dead one cannot easily distinguish that they are apparently ribbon shaped in transverse section as opposed to the round bodied pallida The size both of the spirochæte and its spirals must always be gauged by comparison with a red blood cell preferably in the same field

(ii.) *Spirochæte stains*—Giemsa's and Leishman's stains are those most commonly used for staining film preparations of spirochætes It is well to remember that S pallida stains more faintly than the other varieties of spirochætes For demonstrating the flagella Loeffler's stain is usually employed

(iii.) If a piece of tissue (preputial chancre, excised gland, &c) is received for examination in 10 per cent formalin solution it should be cut first into slices one-eighth of an inch in thickness and then stained by Levaditi's method. The S pallidae stand out very clearly in the subsequent sections being stained a deep black. To obtain the best results it is better to allow the specimen to soak in the 1 5 per cent. silver-nitrate solution for at least a week rather than the three days usually recommended Levaditi's pyridin method is much quicker, as the whole process can be completed within 24 hours, but the spirochætes do not show up so clearly

In all of the above methods—ground stains spirochæte stains stained sections—we are examining the spirochætes when dead, and are therefore deprived of the most distinctive characteristic for differentiation—i e , their movements None of these methods is to be compared with the dark-ground illumination for simplicity speed, and accuracy

(iv.) *To examine specimen by the dark-ground illumination*—Transfer the fluid obtained from chancre gland puncture, mucous patch, cutaneous syphilide or suspected lesion in the mouth or pharynx either direct with platinum loop or from capillary tube on to a clean cover slip (No 1 thickness) held in Cornet's forceps If the specimen unavoidably contains much débris or blood it should be diluted with a drop of normal saline solution and diffused over cover slip This should now be gently lowered with the moist surface downwards on to the centre of a clean slide It is a good plan to regulate the process with a metal-spud, gradually withdrawing the same from beneath one edge of the cover-slip whilst the opposite edge rests upon the slide If the slide is first moistened by passage through steam a more even contact is ensured and air bubbles are avoided. The excess of fluid should now be expressed by applying firm pressure with a piece of filter paper placed over the cover slip The object of this is to obtain as thin a layer of fluid for examination as possible, thereby ensuring the best definition under dark ground illumination If a greater depth of fluid is permitted currents will develop in same when the slide becomes warm—usually at different levels—rendering focussing difficult and the spirochætes have ample depth to dive in or out of focus Even in a shallow preparation these currents will be troublesome should the cover slip overlap the edge of the slide or, again, should any large air spaces be present, which of course expand when temperature becomes raised In using a dark ground condenser of short focal length (this should be ascertained) slides should only be used the thickness of which comes within this margin The Swift condenser is very useful for this work, having a focal length which will permit of the use of almost any ordinary slide, and by using a thin slide there is ample play for very delicate adjustment The condenser should always be accurately centred With the model just mentioned this is a very simple procedure The condenser is first raised flush with the movable stage and with the two-thirds objective the two circles cut on the face of the condenser are focussed By means of the two screws for this purpose the circles are centred The condenser is now lowered and a drop of oil placed upon its upper surface Oil is also placed on top of the cover slip and corresponding under surface of the slide which is now placed upon the movable stage The condenser is raised until its oiled surface makes contact with that of the slide air bubbles are thus avoided The 1 12 inch objective is now gently lowered on to the oiled cover slip and focussed and the reflector is further adjusted The condenser should now be raised or lowered as the case may be, until the maximum dark ground effect is attained

Regarding illumination I have nothing to add to the description furnished with the apparatus depicted in THE LANCET of Oct 21st for this purpose The commonest mistake made by the beginner is to focus the upper surface of the slide not the moving particles in the fluid specimen It is a wise plan first to focus a red blood corpuscle and then perfect the adjustment of reflector and dark ground condenser

In searching a field one must be constantly altering the fine adjustment since it is very easy to miss a S pallida,

[1] Article I was published in THE LANCET of Dec 2nd 1916 p 805
[2] Guy's Hospital Gazette December 1911 A Report upon the Use of Salvarsan in 50 Cases of Active Syphilis Treated as Out-patients

though present, if it is not in the focal plane I always make it a rule never to diagnose the case on the finding of but one *S pallida* If there is one there are bound to be more and the finding of half a dozen typical *pallidæ* always eliminates the personal equation of error In examining a specimen from a lesion of the fauces or buccal cavity this rule should never be broken, with this exception that one is at times fortunate enough to obtain a *S pallida* and a *S microdentium* in the same field and then the diagnosis by comparison is at once easy and devoid of error

(c) *Differential Diagnosis in Spirochætes*

With regard to differential diagnosis in the spirochætes met with in examining specimens in venereal diseases by dark ground illumination the following points should be observed —

Size —The standard for comparison for length should be the diameter of a red blood corpuscle (7 5 μ), which can always be included in a specimen, red cells being, in fact, rarely absent

Shape —Does the spirochæte terminate abruptly at each end or does it fade away so that one cannot actually distinguish its termination? If the latter, one is often able to detect the existence of a flagellum by observing particles adherent to same—a blank space intervening I have observed two *S pallidæ* which have become entangled, still held together at the one pole by their flagella after their bodies were free Is the *body* of the spirochæte uniform in width throughout? Does it appear to be flattened, ribbon shaped, or is it round in transverse section? Note the irregularity of the spirals—i e , would each third of the total length contain an equal number of spirals? Are the spirals "steep,' rendering it difficult to focus the whole of the body, thereby producing the ' string-of beads" effect?

Movements —Be certain that the movements are intrinsic and not merely produced by currents in the surrounding fluid Are these continuous or intermittent, the spirochæte lying as though dead for some seconds, suddenly resuming vigorous movement? Note the flexibility, also rate of progression Is there a definite "corkscrew" movement of rotation, always in the one direction, or can the spirochæte reverse same? Do not confuse this movement with a wriggling movement in one plane analogous to that of a snake through the grass This latter *S microdentium* frequently exhibits, but *S pallida* never Notice any special configuration, such as the formation of a loop at one end, or of a complete circle A movement to be noted is a curious diving out of focus, as though the spirochæte were 'standing on its head"

Refractivity —Note if the rays are refracted in a pure white light, or whether they are broken up on the surface of the spirochæte, giving same a yellow tinge

(i) *S balanitidis*

This spirochæte is always present apart from any inflammatory process beneath a moist prepuce

Size —A small spirochæte rarely exceeding 5μ in length (less than the diameter of a red blood corpuscle) It is however, coarse in comparison to *S pallida*, being nearly as broad as *S refringens*

Shape —Usually possesses but two complete shallow curves, often one and a half Its ends are blunt, having no flagella One end usually thicker than the other True focussing will reveal that it is apparently ribbon shaped In some lights it appears to have an undulating membrane

Movements —Very rapid in fresh specimen—almost dazzling, capable of rapid progression, which is chiefly produced by a wriggling along in one plane (snake like)

Refractivity —Very bright, but yellow tinge in faulty focus

(ii) *S gracilis*

This spirochæte is normally present beneath a moist prepuce I have, however, found it in venereal sores on or about a dry glans penis I have never detected it in specimens from gland punctures This fact is important, since *gracilis* is the spirochæte that most resembles *S pallida* in a genital chancre It is usually removed from a lesion by careful cleansing, its habitat being in the superficial débris not in the deeper layers It is a hardy spirochæte, since I have seen it exhibit active movements after 30 days confinement in a sealed capillary tube

Size —Length usually 6 to 8μ and fairly constant Breadth 0 5μ (half that of *S refringens*, twice that of *S pallida*)

Shape —It is a blunt-ended spirochæte, possessing regular curves, which are more rounded and not so steep as those of *S pallida* The terminal spirals are usually somewhat turned in on themselves By slightly varying the focus one can quickly distinguish that it appears to be ribbon shaped, exhibiting a broad surface alternating with a thin edge

Refractivity —When imperfectly focussed it will assume a yellow tint

Movements —Progression good compared with *S pallida* sometimes moving backwards and forwards in a straight line, pausing at the turn Exhibits the "corkscrew" and also "concertina" movements Is not so flexile as *S pallida*

(iii) *S refringens*

This spirochæte, as its name implies, refracts the light in a dazzling manner A coarse, blunt-ended spirochæte with its few shallow irregular spirals, it suggests a resemblance to a miniature threadworm rather than a delicate spirochæte It is present in many ulcerative or dirty papillomatous conditions, and is so readily distinguished that a detailed description here is unnecessary

(iv) *S pallida*

Size —The variations in length are considerable, varying from 5 to 25μ, but, as far as one is able to judge, the width seems to be constant, being placed at 0 25μ. There is always a fairly wide range in the length of the individual *S pallida* obtained from a common source, but one frequently observes that in the one case there may be a preponderance of very long spirochætes, whilst from another the majority will be of the short variety It is the most slender spirochæte met with outside the buccal cavity and the only type possessing flagella (excluding *S pertenuis* of yaws—happily foreign to this country)

Shape —The spirals are extremely regular and closely set rendering the individual curves steep for their breadth It is this depth of the curves that produces the "chain of beads" effect under the dark ground illumination when the apex of each curve is focussed How one can determine the presence of the flagella has been already described Its body is not flattened from side to side

Refractivity —*S pallida*, compared with the above spirochætes, is very feebly refractile, and the rays deflected are of a purer white than those of any of the others—a cold, non dazzling white, devoid of a halo of illumination extending to the surrounding medium

Movements —Progression very feeble, and provided there are no currents a *S pallida* will remain within the field for hours Its most vigorous movement is rotation upon its long axis (corkscrew) It is extraordinarily flexile, throwing itself into acute angular bends, hinge-like, always returning to the almost rigid straight It may exhibit slight contraction and expansion in length Waves pass from time to time from one extremity to the other Often it will show a loop either at an extremity or towards the centre, persisting for some time Another configuration is a complete circle, the two flagella becoming entwined A characteristic movement is an abrupt dive out of focus—even in the shallowest of specimens—analogous to that of a porpoise Whilst perpendicular one can detect its presence by the disturbance of the surrounding particles It seems incapable of freeing itself at all quickly after a collision

(v) *S microdentium*

This is the spirochæte common in dental caries and pockets and is frequently present in the exudate or slough from an ulcerative lesion in the mouth or fauces Its importance in this work is solely due to its resemblance to *S pallida*

Features —The length of this spirochæte rarely exceeds 6μ Its width is similar to *S pallida* and its shape is identical excepting that flagella cannot be detected The refracted rays are not of such a pure white Regarding movement, its progression is vigorous compared with *S pallida*, which it attains chiefly by a gliding movement similar to a snake, not rotary It is not so flexile, nor can it throw such angular bends as the above, and it does not resume its straight position as persistently

(d) *Cerebro spinal Fluid*

The cell count and globulin estimation should always be done immediately For the former Fuchs and Rosenthal's counting chamber is recommended by Harrison For the latter the Nonne Apelt saturated ammonium sulphate test is rapid and simple The Wassermann reaction can be done at leisure

(e) *Wassermann Test*

It would be outside the object of these practical notes to discuss the technique of the Wassermann test with its many modifications

---

LITERARY INTELLIGENCE —Under the title of 'Poverty and its Vicious Circles Messrs J and A. Churchill are publishing a book by Dr Jamieson B Hurry the author of Vicious Circles in Disease

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

W D Pearman, N S Nairne, J T Macnab, T Grimson, and J L Lamond have been appointed temporary Surgeons

ARMY MEDICAL SERVICE

TERRITORIAL FORCE

Lieut Col H G Falkner to be Assistant Director of Medical Services, and is granted the temporary rank of Colonel whilst holding the appointment

Lieut Col R R Sleman M D London Field Ambulance to be Assistant Director of Medical Services London Division, and to be temporary Colonel whilst so employed

ROYAL ARMY MEDICAL CORPS

Major W Byam is restored to the establishment

Majors (temp Lieut Cols) J G Bell, D.S O, and J D Richmond relinquish their temporary rank on re posting

Major H. S Peeke (Reserve of Officers) to be temporary Lieutenant-Colonel whilst serving with No 1 British Red Cross (Duchess of Westminster s) Hospital

Capts. (temp Majors) T J Crean V C D S O, and G P Taylor relinquish their temporary rank on re-posting

Temp Capt John M Macmillan, from Unattached List, to be temporary Captain

To be Lieutenants J F C Braine, G W Heckels and E Butler from University of London Contingent, Officers Training Corps

Major L S Mackid, C A.M C, resigns his temporary commission

Temporary Captains relinquishing their commissions C Yorke, F G Ralston H M Rainsford and I. R MacLeod A. D Vernon Taylor on account of ill health

Temporary Lieutenants relinquishing their commissions W F Gibb and J S Taggart. H E Girdlestone on account of ill health

SPECIAL RESERVE OF OFFICERS

To be Lieutenants E O A Singer (from Edinburgh University Contingent, Officers Training Corps) J H Vance, E M L Morgan T P Williams, and G S Wilson (from University of London Contingent, Officers Training Corps)

TERRITORIAL FORCE

Eastern Mounted Brigade Field Ambulance Lieut E H Coyne to be Captain

South Midland Mounted Brigade Field Ambulance Lieut O Cook to be Captain.

Welsh Border Mounted Brigade Field Ambulance Lieut. (temporary Capt) D P H. Gardiner to be Captain

London Field Ambulance Lieut Col R R Sleman is seconded whilst holding appointment as Assistant Director of Medical Services

London Sanitary Company Lieut G S Elliston to be Captain

Highland Mounted Brigade Field Ambulance Lieut G W Deeping to be Captain

Lieut. Col. and Hon Surg Col H Colgate from Attached to Units other than Medical Units to be Lieutenant-Colonel

Capt C C Ling, from Attached to Units other than Medical Units to be Captain

INDIAN MEDICAL SERVICE

The King has approved the promotion of the following officers —

Captains to be Majors H. C Buckley M R C MacWatters W H. Hamilton, J Cunningham and H Falk.

Lieutenants to be Captains E R Armstrong, C J Stocker Sahib Singh Sokhey Atul Krishna Sinha Subramanya Doraisamy A. Seddon J Findlay W C Spackman Jyotish Chandra De Nanalal Maganlal Mehta R M. Easton C H P Allen, and R V Martin

The King has approved of the retirement of Lieut V P Norman (on account of ill health)

COLONIAL MEDICAL SERVICES

West African Medical Staff—The following deaths are reported Mr H P Lobb provincial medical officer Nigeria, Northern Provinces and Mr W C E Bower medical officer Nigeria Northern Provinces who was killed in action while serving as temporary Lieutenant R A M.C Dr J A. Pickels senior sanitary officer Nigeria Southern Provinces has been appointed principal medical officer Nigeria Northern Province and Mr H A Foy, sanitary officer Nigeria Northern Provinces senior sanitary officer, Nigeria, Southern Provinces Mr W J D Innes sanitary officer Nigeria has been transferred from Southern Provinces to Northern Provinces Dr G J Pirie medical officer Nigeria Northern Provinces has been appointed sanitary officer, Nigeria, Southern Provinces, Dr H. O'H May, medical officer of health, Gold Coast, sanitary officer, and Dr A. C N McHattie medical officer Nigeria, Northern Provinces, medical officer of health Zanzibar Mr F Manning, principal medical officer, Nigeria, Northern Provinces, has retired on pension Dr G F Darker, medical officer Nigeria, Northern Provinces, has been re-employed, and Dr H G F Spurrell has been appointed temporary medical officer, Gold Coast. The following officers, whose services have been placed at the disposal of the Army Council, have been given temporary commissions in the Royal Army Medical Corps —G G Butler, R Semple (Sierra Leone) H O'H May (Gold Coast), R C Macpherson, L W Davies, H North, and W E Glover (Nigeria)

Other Colonial Services—Dr O J Murphy has been appointed assistant to the colonial surgeon, St Helena

JOURNAL OF THE ROYAL ARMY MEDICAL CORPS

The November issue of this journal opens with a joint paper by Temporary Captain Herbert Henry and Temporary Major T R Elliott, F R.S, on the Morbid Anatomy of Wounds of the Thorax, detailing an investigation undertaken at the instigation of Colonel Sir John Rose Bradford consulting physician to the British Expeditionary Force Of 100 fatal gunshot wounds of the thorax seen at base hospitals in France 95 were caused by septic poisoning and four by hæmorrhage Captain J Gordon Thomson and Captain D Thomson contribute a preliminary illustrated note on the Occurrence of Peculiar "Bodies" of Probably Protozoan Nature frequently Found in the Stools of Dysenteric Patients and Lieutenant-Colonel C J Martin and Major W G D Upjohn discuss the Distribution of Typhoid and Paratyphoid Infection among Enteric Fevers at Murdos from October to December 1915 In a paper by Captain C H. Treadgold on Serum Disease and Anaphylaxis the author arrives at the following among other, conclusions 1 "Accelerated reactions" are very far from being invariable while "immediate reactions" are comparatively rare 2 Dangerous sensitisation after the injection of horse serum is very seldom seen in the human subject 3. While in anaphylaxis sensitisation and intoxication are effected by the unaltered antigen the symptoms of serum disease are mostly due to the toxic action of the split products 4 All these phenomena are due to a series of physical or physico-chemical changes the nature of which is very imperfectly understood at the present time Other articles of interest are Arrangements for the Care of Cases of Nervous and Mental Shock coming from Overseas, by Temporary Lieutenant Colonel W A. Turner, and Continued Fevers of Obscure Origin among Soldiers of the British Forces in Greece by Lieutenant-Colonel G Chambers C A.M C

VITAL STATISTICS

HEALTH OF ENGLISH TOWNS

In the 96 English and Welsh towns with populations exceeding 50 000 persons at the last Census 7247 births and 5128 deaths were registered during the week ended Saturday Nov 25th The annual rate of mortality in these towns which had been 12 6, 13 5, and 13·0 per 1000 in the three preceding weeks, rose in the week under notice to 15 4 per 1000 of their aggregate civil population estimated at 17 312,295 persons for the year 1915 During the first eight weeks of the current quarter the mean annual death rate in these towns averaged 13·0 per 1000, and was equal to that recorded in London Among the several towns the death rate during the week ranged from 5 3 in Oxford, 8·4 in Ilford 8 8 in Barrow in Furness 9 1 in Ipswich, and 9 2 in Wallasey, to 20·4 in Merthyr Tydfil, 21 1 in Rotherham, 23 2 in Derby 25 9 in Newport (Mon) and 31·0 in Great Yarmouth

The 5128 deaths from all causes were 820 above the number in the previous week and included 210 which were referred to the principal epidemic diseases, against 250 and 241 in the two preceding weeks Of these 210 deaths 105 resulted from infantile diarrhœal diseases, 45 from diphtheria 29 from measles 14 from whooping-cough, 11 from enteric fever and 6 from scarlet fever but not one from small pox The annual death rate from these diseases was equal to 0·6 against 0·7 per 1000 in the previous week The deaths of infants (under 2 years) from diarrhœa and enteritis which had steadily declined from 477 to 112 in the ten preceding weeks, further fell to 105, and included 26 in London 10 in Liverpool 7 in Birmingham, and 5 in Manchester The deaths referred to diphtheria which had been 39 60 and 56 in the three preceding weeks fell to 45 of which 9 were registered in London and 3 each in Coventry Sheffield Hull, and Cardiff The fatal cases of measles, which had increased from 13 to 40 in the four preceding weeks, fell to 29 and included 12 in London and 6 in

Coventry The deaths attributed to whooping cough, which had been 20, 17, and 12 in the three preceding weeks, rose to 14, of which 3 occurred in Cardiff and 2 in Liverpool The 11 deaths referred to enteric fever were equal to the number recorded in each of the two preceding weeks, and included 4 in London The fatal cases of scarlet fever, which had been 12, 9, and 10 in the three preceding weeks, fell to 6, but showed no excess in any town

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 1141, 1171, and 1170 at the end of the three preceding weeks, fell to 1123 on Nov 25th, 120 new cases were admitted during the week, against 146, 157, and 131 in the three preceding weeks The cases of diphtheria again rose to 1584, against numbers increasing from 1262 to 1556 in the ten preceding weeks, 195 new cases were admitted during the week, against 186, 202, and 193 in the three preceding weeks These hospitals also contained on Nov 25th 109 cases of measles, 40 of enteric fever, and 40 of whooping-cough, but not one of small pox The 1307 deaths from all causes in London were 153 in excess of the number in the previous week, and corresponded to an annual death rate of 15 8 per 1000 The deaths referred to diseases of the respiratory system, which had increased from 132 to 236 in the five preceding weeks, further rose to 294 in the week under notice

Of the 5128 deaths from all causes in the 96 towns, 206 resulted from violence, 414 were the subject of coroners' inquests, and 1537 occurred in public institutions The causes of 55, or 1 1 per cent, of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest All the causes of death were duly certified in Leeds, Bristol, Bradford, Newcastle-on Tyne, Leicester, and in 66 other smaller towns Of the 55 uncertified causes, 14 were registered in Birmingham, 4 in London, and 3 each in Liverpool, Rotherham, and South Shields

HEALTH OF SCOTCH TOWNS

In the 16 largest Scotch towns with an aggregate population estimated at 2,372,000 persons at the middle of this year 955 births and 700 deaths were registered during the week ended Saturday, Nov 25th The annual rate of mortality, which had been 13 9, 14 5, and 13 9 per 1000 in the three preceding weeks, rose to 15 4 per 1000 in the week under notice During the first eight weeks of the current quarter the mean annual death rate in these towns averaged 14 0, against a corresponding rate of 13 0 per 1000 in the large English towns Among the several towns the death rate in the week ranged from 8·0 in Clydebank, 9 9 in Motherwell, and 11 2 in Kilmarnock, to 16 3 in Glasgow, 18 1 in Greenock, and 18 2 in Dundee

The 700 deaths from all causes were 66 above the number in the previous week, and included 53 which were referred to the principal epidemic diseases, against 38 and 47 in the two preceding weeks Of these 53 deaths, 20 resulted from measles, 18 from infantile diarrhœal diseases, 9 from diphtheria, 3 from scarlet fever, 2 from enteric fever, and 1 from whooping cough, but not one from small pox The annual death rate from these diseases was equal to 1 2, against 0 6 per 1000 in the large English towns The deaths attributed to measles, which had been 11, 8, and 9 in the three preceding weeks, rose to 20, and comprised 13 in Dundee, 6 in Glasgow, and 1 in Perth The deaths of infants (under 2 years) from diarrhœa and enteritis which had been 18, 13 and 18 in the three preceding weeks, were again 18 in the week under notice, and included 7 in Glasgow, 4 in Edinburgh, and 2 in Coatbridge The fatal cases of diphtheria, which had been 10, 5 and 8 in the three preceding weeks numbered 9, and comprised 4 in Edinburgh, 2 each in Glasgow and Aberdeen, and 1 in Greenock The 3 deaths attributed to scarlet fever were 2 below the average in the earlier weeks of the quarter, and included 2 in Glasgow and 1 in Coatbridge The 2 fatal cases of enteric fever were registered in Glasgow and that of whooping-cough in Paisley

The deaths referred to diseases of the respiratory system, which had increased from 74 to 118 in the five preceding weeks farther rose to 131 in the week under notice, but were 191 below the number registered in the corresponding week of last year The deaths from violence numbered 27, against 37 and 38 in the two preceding weeks

HEALTH OF IRISH TOWNS

In the registration area of Dublin 148 births and 153 deaths were registered during the week ended Saturday, Nov 25th The annual rate of mortality which had been 15 9 21 3, and 17 7 per 1000 in the three preceding weeks, rose to 20 1 in the week under notice against corresponding rates of 15 8 and 16 3 per 1000 in London and Glasgow respectively

The 153 deaths at all ages included 30 of infants under 1 year and 47 of persons aged 65 years and upwards Five deaths (of infants under 2 years) were referred diarrhœa and enteritis The causes of 12 deaths were u certified, and those of 3 others were the subject of coroner inquests while 60, or 39 per cent, of the total deat ocurred in public institutions

During the same period 165 births and 118 deaths we registered in the city of Belfast The deaths correspond to an annual rate of 15 8, or 1 8 per 1000 above that record in the previous week, and included 21 of infants under 1 ye and 30 of persons aged 65 years and upwards One dea was referred to whooping-cough and 5 others (of infan under 2 years) to diarrhœa and enteritis The causes of deaths were uncertified, 8 inquests were held, and 29 of th total deaths occurred in public institutions

Correspondence.

' Audi alteram partem.

"SPONTANEOUS BURNS"

To the Editor of THE LANCET

SIR,—During the last sixteen months I have seen an treated four very interesting, and as far as my experienc goes rare, cases of burns All these burns, save one, wer on the leg, just below the knee-joint In the first case th burn was in the popliteal space, in the second between th fourth and fifth toes, the opposing skin surfaces showing tw black wounds about one quarter of an inch in diameter, th third case had the lesion over the tibialis anticus about on inch below the crest of the tibia, while in the fourth it wa on the inner and posterior aspect of the limb

On examining the breeches of the men affected nothing was visible on the outer surface of the cloth but the inner surface revealed a black charred depression roughly circular in outline and about half an inch in diameter, the fibre of the cloth being burned and destroyed presenting an appearance similar to that which one occasionally sees when the head of a phosphorus match has become ignited between layers of cloth, save that in the former case the burning process had been more persistent extending over several hours, and had eroded the substance of the cloth to a greater extent, the more resistant fibres of the cloth being spared and forming a sort of open charred network over the depression The surface of the underpants which had been in contact with the charred area above described was completely burned, and all one saw was a circular hole with black charred edges

The opposing skin surface, however, presented a remarkable appearance—namely a perfectly circular ebony black mark approximately half an inch in diameter the circular periphery being the striking feature On closer examination the lesion showed a clean cut, punched out edge with a flat even floor, and when the glistening black covering which could not be removed even with forceps had disappeared, it was found that the destructive process had penetrated as far as muscle tissue In short it looked as if the skin had been carefully and persistently cauterised with silver nitrate In the first and third cases there was one wound only while in the second and fourth there were two, one conforming to the usual half inch diameter, the other, close beside it, about one eighth of an inch in diameter

The subjective symptoms, of which I have a personal knowledge, being myself the fourth case are very slight After walking about for a few hours one experiences a slight burning sensation of which little notice is taken and which is put down to chafing due to rather stiff breeches As one expects the chafed surface gradually becomes more painful and at night-fall one is surprised to find upon examination the condition above described plus a little blood staining Within four or five days the black surface disappears and the wound heals slowly with but a slight serous discharge The lesions in themselves are of little moment but the results of the erosion may at first look alarming as was the case in the third patient whose first intimation that any thing was wrong was the sudden onset of violent hæmorrhage due to the erosion of a small vein I was sent for hurriedly to attend a driver who was 'bleeding profusely from a ruptured varicose vein' a diagnosis apt enough when one saw the blood stained condition of the patient's breeches and blanket Cases 1 and 3 were wearing breeches of the

ordinary khaki cloth men's pattern, Case 4, men s pattern Bedford cord as supplied by ordnance to officers

The question now remains What is the cause of these peculiar circular burns? One naturally thinks of irritants possibly the presence of some chemical used in dying or loading the cloth, and as all the cases have occurred during the summer months one asks, "Are heat and moisture required for the reaction?" In my case I had only worn the breeches for two days before the burns appeared, but during these two days I had done a considerable amount of heavy walking over the steep roads amongst the hills overlooking the Struma valley, one result of which activity was free and profuse perspiration In Cases 1 and 3 the breeches had been worn probably for weeks before the condition described arose. The first case occurred in France during the earlier and cooler part of the summer (1916) the others in Macedonia, where the climatic conditions were at least semi tropical

In considering what may be the causative factors in such a condition one first thought that perhaps a match head had filtered through a much worn breeches pocket and had become caught in one of the numerous creases behind the knee and that pressure and friction while riding had caused the lesion, but the absence of any sudden painful sensation —the fact that no history of matches being carried in the breeches pockets could be obtained—excluded this as a possible cause

Major Henderson D S O the D A.D M.S of the Division threw out as a suggestion that particles of chloride of lime from latrine seats retained in the region of the knees may be a probable source of the injury but in two cases (1 and 4) I can with certainty exclude chloride of lime However acting upon the suggestion I put 1½ gm of chloride of lime in the knee of my breeches for six hours during which time I made my usual tour of duty, walking and riding with the result that I experienced the same burning sensation becoming more and more intense, but upon examination no burned surface was found merely a slight inflammation extending half way round the leg, with two or three very slight erosions of the skin where the irritation and friction had been more severe What at first looked as if it might possibly be the commencement of charring proved to be merely blood coagulum and could be dusted off with wool a red chafed surface being left. The lime had no effect on the breeches, blood stains were present but there was no destruction of the cloth fibre Sulphur I have also tried but with no effect whatever The head of a safety match was also without effect

The question of the causal agent of such a definitely demarcated ulcer with its black charred edge, its deep rapid, and almost painless erosion should be of interest not only to medical men but to manufacturers of cloth, to whom the question of the chemical salts used in dyeing loading, and 'giving body to the cloth' is of so great importance Two further cases have been reported in the division by Captain Hamilton R.A M C It would therefore be of interest to know if medical officers in other divisions had met with similar cases, and to have their ideas on the matter

I am Sir yours faithfully

MARTIN M CRUICKSHANK,
Captain, R.A.M C

Oct 30th 1916.

RHEUMATOID ARTHRITIS APPARENTLY CURED BY "AUTO"-COUNTER-IRRITATION

To the Editor of THE LANCET

SIR,—The treatment of chronic rheumatoid arthritis by counter irritation and keeping open the ulcerated surfaces receives support from the following case

A man aged 45 with rheumatoid arthritis in very bad form for nine years—nearly every joint affected, only able to get about on crutches considerable emaciation—came under my care two years ago He improved considerably from the administration of arsenic iron s rychnine and iodides internally good stimulating diet and fresh air avoidance of all thermal water treatment and by residence in a high altitude Six months ago he developed glandular swellings in the neck one each side about two and a half inches above the clavicle they rapidly suppurated and assumed the dimensions of large walnuts He refused to have them opened and I then explained to him that as it was his wish to allow them to break it would be an opportunity for treating the arthritis by counter irritation in keeping the ulcerated surface open

The patient accepted the suggested course of treatment, the abscesses, after discharging, broke down at their edges, about 2 square inches on each side remained for granulating From the first no irritating measures seemed called for to keep the surfaces open, so that I advised him to keep them antiseptic with alternate applications of boric ointment and weak carbolic oil They have not yet healed, but are doing so slowly, and, in a letter received from the patient on Nov. 3rd he says "The abscesses are gradually going the discharge is much less, and I have hope now that they are nearing the end of their journey One marvellous thing is, or arthritis I have none"

Although the above counter irritation (if such it was) was not carried out on the recommended surfaces contiguous to the spinal column I think that the remarkable disappearance of the arthritis suggests at least the effect of a cause, the cause being obviously here (in view of the fact that all other treatment for arthritis was suspended) the ulcerated surfaces caused by the abscesses

I am Sir, yours faithfully,

Wimpole-street W Nov 30th 1916 C T GRIFFITHS

THE LIBRARY OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND

To the Editor of THE LANCET

SIR,—May I ask why the Council of the Royal College of Surgeons of England has decided to regulate the hours of the Library according to the Lighting Order? The readers it is true, at present show a diminishing number, but these are likely to become fewer still by closing the Library in the afternoon at a time when those engaged in the earlier part of the day can only attend The usefulness of the Library is being seriously curtailed by this policy, and to discourage the attendance of readers, by failing to meet a demand of the war, either on the grounds of economy or for any other reason must for example, deprive many officers of the Royal Army Medical Corps of the opportunity of profiting from the advantages the Library affords This policy, the Council will excuse me for suggesting, seems scarcely to be a sapient example of official administration. To meet the disability of, not to evade a war demand must surely in this instance be the proper course to pursue The cost of a few blinds it cannot be supposed would involve a prohibitive outlay while the justification of such an outlay must be apparent under the circumstances of the case.

I am Sir, yours faithfully

Wimpole-street Nov 23rd 1916 PERCY DUNN

SCOPOLAMINE-MORPHINE IN LABOUR

To the Editor of THE LANCET

SIR,—A note upon two years experience of the scopolamine-morphine method of inducing anæsthesia in childbirth may be of interest to your readers

I have used it in 64 cases out of which number 2 were unsuccessful as regards anæsthesia one of these was a primipara, the other one had one child Both were robust well-built young women. Of the 62 cases in which the anæsthesia was perfect 20 had some obstetric manipulation performed and 18 of these had a final anæsthesia with chloroform lasting from 10 to 25 minutes Two out of the 20 abnormal cases had the low application of forceps under scopolamine alone In the 42 cases the only anæsthetic being scopolamine, both the mother and child were well I have had no post-partum hæmorrhage and no stillbirths in normal confinements In the whole record of 64 cases I have had one stillbirth this in a primipara aged 40 delivered under chloroform after over 48 hours under scopolamine of a child weighing 12 lb This was one of the worst confinements that I have attended Afterwards she stated that she knew nothing about the whole period of labour from the first injection of scopolamine In my practice I have had two stillbirths in cases in which chloroform was used only within the last two years

As regards apnœa in the infant I have had no trouble in any of the normal cases In two abnormal cases there was difficulty with the infant one of these a long tedious labour of over 12 hours duration in which forceps were applied the other a case of premature delivery at seven months In this case I spent about half an hour before the child s

respiration was satisfactory In the same nursing home about the same time an infant was born *at term* without scopolamine and without chloroform which required the same amount of attention

I have come to the following conclusions That in normal cases this method is a boon to the mother and harmless to the child That in abnormal cases extending over many hours scopolamine morphine is just as useful. That 1/6th grain of morphine sulphate with the first dose is enough for a normal case unless there is great restlessness The nearer the end of the first stage of labour that the treatment is started the better the result Owing to rigidity, chloroform is advisable in any operative interference

The following case is typical of a normal confinement under scopolamine morphine anæsthesia

Mrs ——, aged 24, primipara, was given the first injection at 5 30 P M, as on examination the cervix was dilating and she, in her own words, 'was only just beginning to realise actual pain" Previous to this she had been walking about and waiting for the labour to start At 6 30 P M another injection of scopolamine was given She began to doze about 20 minutes after the first injection, and was perfectly peaceful until after five hours, she woke up and, again to quote her words, "felt quite refreshed, and found that baby had been born two hours before, quite healthy and normal'

She was quite quiet and felt no pain from beginning to end I am, Sir, yours faithfully,

Gillingham, Kent Nov 23rd 1916 IAN JEFFERISS

THE ANGLE OF THE DROPPING PIPETTE AND A METHOD OF DROP-MEASURING LIQUIDS

To the Editor of THE LANCET

SIR,—In your issue of Nov 18th Captain R P Garrow, R A M C, has on the angle of the dropping pipette, an excellent and timely article advocating a reasonable degree of live intelligence on the part of workers in using drop measuring, as was advocated also by Dr P Fildes and Dr J McIntosh in a recent article on A Method of Applying the Wassermann Reaction in Large Numbers, in THE LANCET of Oct 28th

The phenomenon of a simply drawn pipette of suitable gauged size rhythmically yielding equal drops of desired volume is one of the most remarkable quiet small phenomena in nature Few and simple as are the 'rules" for guiding this gentle force thus harnessed, those rules must be known and followed

An attempt was made to set forth the principles and some applications of drop-measuring in two articles recently published by me in THE LANCET of Dec 4th, 1915, and Sept 2nd, 1916 The space was all too small, and I have not yet seen occasion to modify, except in the way of expansion, any of my statements Among the 90 paragraphs of my two articles one was devoted to the angle of the pipette The practical rule that the pipette should be "held vertical or nearly so," was thus given and was explained by pointing out that the drop size increases with the circle or oval of contact that the long axis of the oval increases roughly as the secant of the angle of declination from the vertical, and that the secant increases in the first 8° at only one sixteenth of the rate at which it increases in the sixth 8° I did not pursue the matter beyond 45° from the vertical position, indeed, in the second 45° the resultant of the various forces in play is widely different according to the size of the pipette concerned Thus, with Captain Garrow's pipette the drop from the horizontal nozzle has twice the volume of the drop from the vertical nozzle But with a pipette 1/3 mm in outer diameter, freshly drawn by me, the "horizontal drop" is three times the volume of the 'vertical drop' This further emphasises the rule, as Captain Garrow puts it 'The only correct position in which to hold a dropping pipette is the vertical position"

I am, Sir, yours faithfully

R DONALD

Bacteriological Laboratory London Hospital Medical College
Nov 24th 1916

THE King has sanctioned the following appointments to the Order of the Hospital of St John of Jerusalem in England —As Knights of Grace Colonel S M Smith, I M S, and Surgeon General R W Ford C B, D S O

The War.

THE CASUALTY LIST

THE following names of medical officers appear among the casualties announced since our last issue —

Wounded

Capt C O Donovan, R A M C, attached Loyal North Lancs Regiment
Capt R Farrant R A M C
Lieut Col N C Rutherford, R A M C
Capt A O Wilson R A M C
Surgeon Major F W Bailey, Royal Field Artillery

DEATHS AMONG THE SONS OF MEDICAL MEN

The following sons of medical men must be added to our lists of those who have fallen during the war —

Lieut L Fitzmaurice Somerset Light Infantry, fifth son of Dr R Fitzmaurice, of Littlehampton, and late of Lindfield, Sussex
Second Lieut A. A Smith Loyal North Lancs Regiment younger son of Dr A Smith, J P, of Camberwell
Capt W G Barker, Connaught Rangers, only surviving son of the late Col A Barker, Army Medical Service of Harley street, London

MENTIONED IN DESPATCHES

In a despatch received from General Sir Archibald Murray K C B, Commander in Chief of the Egyptian Expeditionary Force, dated Oct 1st, and dealing with the operations in Egypt from June 1st to Sept 30th, the names of the following medical officers are mentioned —

Staff, &c—Col (temp Surg Gen) J Maher, C B, A.M S Major (temp Lieut Col) P S Lelean, C B, R A M C Major (temp Lieut Col) C J Martin, Australian A M C Temp Capt A. S M Macgregor, R A M C

Army Medical Service and Royal Army Medical Corps—Temp Lieut Col H L Eason, Local Lieut Col L P Phillips, Temp Lieut Col J W Barrett, C M G, Major (temp Lieut Col) E McDonnell, Capt R B Campion (Spec Res), Temp Capt T D Kennedy, Temp Lieut M Sommerville Temp Capt G Wight, Lieut Col W Howorth, Capt (temp Lieut Col) J W Mackenzie, Capt C C Fitzgerald, M C, Capt A. H Norris Capt N H H. Haskins, Capt A B Sloan, Capt R S Taylor Capt F J Green, Capt J H Wood, Capt D Dickie Capt (temp Major) A H Horsfall D S O

Australian and New Zealand Forces—Lieut Col (temp Col) R M Downes, A A M C, Major W Stansfield A A.M C, Capt P Dunningham, A A.M C Lieut Col G P Dixon, A A.M C, Lieut Col D G Croll, A A M C Major E R White, A A M C, Capt B D Gibson A.A M C Capt. D D Jamieson, M C, A A M C, Capt G H Vernon, A A.M C, Capt G H Wood, N Z M C (died of wounds), Capt R G S Orbell, M C

Indian Army—Col W H B Robinson, C B I M S Major H B Drake, I M S, 1st Class Sub Asst Surg Muhammad Zaki

THE EYE RISKS OF MUNITION WORK

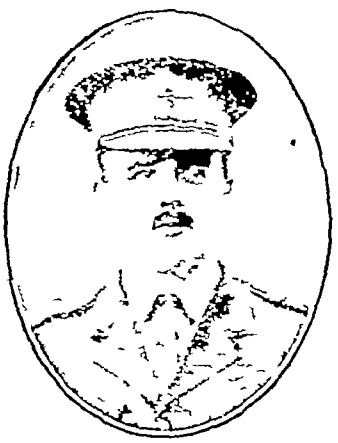
It might be expected *a priori* that the great extension of munition work would have entailed an increased incidence of injuries to the external eye That this is not necessarily the case is shown by the letter of a surgeon to an eye infirmary serving a great industrial district, quoted in the most recent memorandum of the Health of Munition Workers Committee (Cd 8409 Price 1*d*) The total number of out patients had not been sensibly greater in 1915 than 1913 and the 10 per cent. increase in cases of impacted foreign bodies was attributed by the surgeon to the growing preference of the worker for their removal by a skilled hand rather than by a fellow worker The Memorandum states that the evidence of eye accidents in munition works is in large measure a matter of reasonable precaution The majority of injuries are due to metallic particles shot off from the lathe against which the wearing of goggles is a sufficient protection Two forms of eye guard have been designed by the Committee to meet the needs of workers, both of which provide for ventilation and easy replacement of the glasses The misdirected efforts of fellow workers to remove foreign bodies—the only fruitful source of sepsis—are to be replaced by the attention of the factory nurse, who should have had (the Memorandum states) some ophthalmic training First aid by fellow workers should be confined to the use of eye-drops with or without a pad and bandage

OBITUARY OF THE WAR

IAN MACDONALD BROWN M A CAMB M R C S ENG

CAPTAIN ROYAL ARMY MEDICAL CORPS

Captain I M Brown, who was killed in action on Nov 15th aged 28 years was the younger son of Dr Macdonald Brown, of 64 Upper Berkeley street, London, W He was educated at St. Paul s School and Downing College, Cambridge, taking the Natural Science Tripos in 1910 and his M A. degree four years later After a year at the University of Edinburgh he completed his medical studies at the London Hospital, taking the Conjoint diploma in 1914 Before going up for the final M B Camb war was declared, and he at once volunteered his services obtaining a commission in the R A M C After spending a period of service at Aldershot he was sent out to Gallipoli in June, 1915 and was invalided home two months later He then held various posts in the Southern Command until he was sent out again this time to France attached first to a New Zealand Division and later to a brigade of artillery It was while attending to the wounded under fire that he was killed Many letters have been received by Captain Macdonald Brown s relatives from the officers and men with whom he was for long in intimate contact all alluding to their personal loss He leaves behind him a widow and an infant son



JAMES DAVID FORRESTER M B, CH B EDIN

CAPTAIN ROYAL ARMY MEDICAL CORPS

Captain J D Forrester, who was killed in action on Nov 13th at the age of 28 was elder son of Provost James Forrester of Peebles He was educated at Peebles County High School and George Watson s Boys College, Edinburgh continuing his medical studies at the University and graduating in 1912. After a voyage to India as ship s surgeon and resident appointments at Rochdale and Halifax he volunteered for service on the outbreak of war and after obtaining his commission was for a time at Aldershot before being given charge of the advanced dressing station of a field ambulance attached to the Royal Naval Division With this he was serving at the time of his death Captain Forrester was of a solid persevering nature which would have carried him far, and this was combined as his friends testify with a consideration for others which lightened the lot of his associates He stuck close to his work but found time to play with the Northern Hockey Club and to captain a municipal tennis club He was lately married to Elizabeth daughter of William Steel of Lockerbie and leave an infant daughter

THE MOBILISATION OF THE MEDICAL PROFESSION

We quoted in THE LANCET last week Sir Donald MacAlister s words to the General Medical Council from the presidential chair, in which he said that he had received a letter from the War Office stating that that Office would gladly engage 400 medical practitioners to-morrow if they were forthcoming We gave particular publicity to the words, because they were calculated to prepare the medical profession for a movement which may shortly take place for a call upon all persons whose names are to be found upon the Medical Register for assistance to the best of their capacity during the continuation of the war While we have every reason to believe that the Central Medical War Committee and the Scottish Medical Service Emergency Committee have been able to supply the needs of the Navy and Army in the matter of medical officers up to this time and while indeed, there is no evidence that these two bodies will not be able still to play the same valuable part for a considerable period it is clear that there must come a day, if the war is indefinitely prolonged, when the necessary economy of medical men can only be attained by the mobilisation of the whole of the available supply, so that calls can be made upon individual services as, where, and when required by circumstances It has long been felt that some such step—a step to which for convenience, the word "mobilisation" is applied—might have to be taken, and a strongly expressed view to this effect has reached us from Scotland We believe that the general opinion of the medical profession judging by the correspondence that comes to us, is in a similar direction. As yet the civilian population has not suffered in any marked way from depletion of medical men, but the distribution of the medical men remaining in civilian practice has been the subject of much criticism some localities appearing to maintain more practitioners than can be necessary having regard to their populations while others must be content with the minimum of professional attention In this connexion the part played by pecuniary engagements and liabilities in determining decisions cannot possibly be ignored and the sacrifice that has to be made in the keeping of enrolment pledges is very much greater in the case of some medical men than in the case of others But the members of the medical profession are the only people who can do medical work, and volunteers from outside cannot be taught our science in a few weeks as they can be taught a branch of some technical industry The medical man is the product of long training which cannot be dispensed with and therefore those medical men whom the country possess should be used in the most economical way This is the fact which seems to us to mean that some form of general mobilisation is advisable which, by treating all our highly specialised class as one family should ensure that only the real need of each area is served and that where such need is more than met the surplus energies can be directed to other spheres The demands made upon medical men in this way would necessarily be very heavy, but the burden would be distributed upon us all Moreover the medical profession as a whole those already in the ranks of the Navy or Army and those without would establish the right to ask that their corporate strength should be as carefully husbanded in the ranks of the services as in the civilian areas

ACCUMULATED FATIGUE IN WARFARE

The second interim report of the British Association Committee, of which Professor J H. Muirhead is chairman to investigate fatigue from the economic standpoint has now been printed and contains a deeply interesting section by Dr T G Maitland on Accumulated Fatigue in Warfare The present war has alas provided unlimited material for the study of fatigue in soldiers at the front and the cases differ from those of fatigue among civilians in being of greater severity and, in the nature of things, not susceptible to experiment Military necessity has in the past often prevented the Army from getting the greatest possible value out of each of its units, it was found that the breakdown resulting from long continued trench strain, while soon recovered from after a period of rest, left the quality of the soldier s work on his return to activity impaired, his

aim was less good, his decision less prompt Dr Maitland states that the hope of obtaining an ideal working day for each unit is incapable of realisation, as the actual strain in the field varies with the occasion, and depends on such mutable factors as sleep, food, noise and nervous strain Happily, with the present greater ability to supply reinforcements strain can be diminished as well as the actual fighting units more often replaced, and in this way an opportunity is given for what Dr Maitland calls a "growing delicacy of perception in the anticipation of the breaking point" From a military standpoint the most important item is the large class of combatants who do not collapse in the field but return from the lines with extreme pallor, a low blood pressure, and a *faiblesse irritable* shown by the restlessness of hands and feet In these cases fatigue has gone slightly beyond the possibility of sound physiological recuperation To reduce the incidence of such cases which are a genuine encumbrance the hours in the fighting line have lately been diminished The ultimate sequel of such long continued fighting strain has been seen by Dr Maitland in Serbian soldiers who have lived through six years of nearly continuous Balkan war and many of whom show marked arterio sclerosis He was able in most cases to exclude the action of mineral poisons alcohol, and acute specific toxins, and to establish the production of fibrosis in the arteries from hard work alone The whole of this interim report teems with matter of urgent and practical interest and further instalments will be welcomed

---

AMERICAN MEDICAL EXPERIENCES AT THE WAR

Medical Director H G Beyer, who would be styled in a British Navy List Deputy Surgeon General, has recently told how he was at the outbreak of war working in a laboratory in Berlin He volunteered at once for Red Cross work and was detailed, to the Red Cross Auxiliary Naval Hospital, of 3000 beds, established at Hamburg in the Emigrants Waiting Place of the Hamburg American Line Here he had 64 colleagues all, he says inspired with a splendid comradeship and devotion to duty Dr Beyer was specially attached as assistant to Professor E Lexer, and while admiring all the work done he was particularly impressed by the very satisfactory results of the transplanting operations preventing crippledom and deformity Further the silence and the accurate work of the sick transport corps greatly impressed the reporter He saw 200 wounded removed in 20 minutes at midnight from a hospital train to the waiting motor ambulances "without noise without audible words of command being given" The same machine like silent efficiency characterised those who removed patients from hospital ships

Major W A Jolley of the National Guard of Colorado, has described in the *Military Surgeon* his work at Belgrade under the American Red Cross in the Serbian National Military Hospital where he took the place of Dr Magruder, who had died from typhus In his article, which is excellently illustrated, he notes that improvised hospitals in war time should be located with particular reference to their safety during possible fighting, and observes that the Austrians were very careful during the bombardment to spare his hospital in its conspicuous position with its large Red Cross flag He thinks that large hospitals should have short tracks laid into them from some near by railway to facilitate the transport of sick, to save labour and to prevent congestion of the railway stations, evidently relying upon the immunity from attack which his hospital enjoyed but which has not been common Much of Dr Jolley's experience was that of other hospital workers in Serbia and has therefore been the subject of many books, papers and addresses in this country, but we do not remember to have seen one piece of information before He says that most of the sanitary equipment of Serbia was material captured from the Austrians in their retreat When the Austrians had been in Belgrade for a month they permitted the American party to go home having been on terms with the Austrians which have not been reported by some other medical and sanitary workers in the war

A doctor who has recently returned from Austria where he has been acting as captain in the Austrian Army Medical Corps gave an address recently in Philadelphia in which he stated that in spite of the general military preparedness of Germany, they were woefully lacking as regards trained nurses, orderlies, facilities for transportation of the sick, supplies, and other essentials of the sanitary service Dr Harvey Cushing, of Boston Mass, who has been working with the American Ambulance in Paris, has discussed in a full and valuable way the management of cerebral wounds These, except some tangential longitudinal sinus injuries, which recover spontaneously, and the inaccessible fractures of the base, all require surgical intervention, and Dr Cushing decides that, except in cases of severe primary hæmorrhage, it is better to send the wounded man to the base hospital. He may not reach it within a couple of days and thus 1 per cent may be lost, but 10 to 20 per cent will be saved, for the brain is notably tolerant to contusions and infections, while even apparently trivial scalp wounds may require for their thorough treatment prolonged neurological study detailed X ray examination, carefully planned operation under skilful anæsthesia and perhaps other appliances such as an electro magnet None of these are available at the very front

---

RECENT RED CROSS WORK IN DEVONSHIRE—The War Office has accepted the offer of the residents of Great Torrington (Devon) to equip the residence "Euderley" as a military hospital for 50 patients The Mayor of Lyme Regis (Dorset) has offered Rhode Hill House, Uplyme (Devon), as a military hospital, there is accommodation for 90 cases, but at the outset it is proposed to receive 50 patients Peak House, Sidmouth (Devon) has been opened as a Red Cross Hospital and accommodates 50 patients The commandant is Mr R D Stokes and the medical officer Dr A Robin

"THE CRIMES OF GERMANY"—The illustrated special supplement of the *Field* noticed in THE LANCET of Jan 29th, devoted to the violations of international law and humanity by the armed forces of the German Empire, has been revised and brought up to date and is now being issued at the price of 1s which will ensure a large circulation for this terrible indictment The re-issue is made in the public interest and the publishers derive no gain from it

AN Army Order issued this week equalises for the purpose of pension or gratuity injuries received by officers in the performance of their military duties although not acquired in action Evidence must be forthcoming in each case of special risk due to war conditions, and that reasonable precautions had not been neglected

---

Obituary.

WILLIAM PAUL SWAIN, F R C S ENG,

CONSULTING SURGEON TO THE SOUTH DEVON AND EAST CORNWALL HOSPITAL.

THE death has occurred in his 83rd year at his home in Plymouth of Mr William Paul Swain, F R C S Eng Mr W P Swain was son of the late Mr P W Swain, F R C S J P, in his time also a well known surgeon at Plymouth After studying at King's College, London, where he later became an honorary Fellow, and holding resident appointments at King's College Hospital he joined his father at Plymouth in a large surgical practice His first hospital appointment was on the honorary staff of the Royal Albert Hospital Devonport, from which he resigned on his election as assistant surgeon to the South Devon Hospital to which he remained attached all his life His surgical writings attained a wide publicity He was awarded the Jacksonian prize in 1865 for an essay on Diseased Conditions of the Knee-Joint and his handbook on "Surgical Emergencies for the Use of General Practitioners" ran rapidly through five editions and went all over the world He was also a frequent contributor to these columns on points of surgical technique Outside his purely surgical work he was active in improving the sanitary conditions of the Three Towns, being at one time chairman of the Sanitary Committee of the Council, of which he had been a member for 18 years Mr Swain had held a commission in the 3rd Devon Volunteers and was a first-rate shot, he was also the possessor of a medal for service in the previous Serbo-Bulgarian War His loss will be widely felt in Plymouth, where he has left a widow and daughter

Medical News.

ROYAL MEDICAL BENEVOLENT FUND.—At the last meeting of the committee held on Nov 14th 35 cases were considered and £305 voted to 29 of the applicants The following is a summary of the cases relieved —

Wife aged 53 of M R C S Eng who practised until recently at Tunbridge Wells Her husband a few months ago had a paralytic seizure which has left him helpless His practice which produced between £500 and £600 a year has now been sold, and he is to receive one-third of the proceeds for three years and as the practice was more or less a personal one less than £100 a year is expected. There are 11 children seven of whom are at home and four going to school and elder ones only able to help very slightly Voted £2 last month and referred to the Guild. Voted £10 —Daughter aged 54 of M.R.C S Eng who practised at Hadleigh. Applicant was a governess for 35 years but owing to a breakdown in health had to discontinue the work. Income £18 from dividends and £21 pension from another society and earns a little by needlework. Owing to high price of food unable to manage at present Voted £2 last month and referred to the Guild Voted £12 in 12 instalments —Daughter aged 47 of M R C S.Eng who practised at Streatham and died in 1914 Applicant suffers from abdominal trouble and only able to do a little painting for which there is no sale at present. Only income £17 per year Her mother has help from the Fund Relieved twice £10 Postponed last month for further inquiries Voted £5 — M.R.C S Eng aged 47 married, who practised at Birmingham, suffering from disseminated sclerosis. Until recently was able to earn a bare living by acting as ship's surgeon, but now too ill to undertake work of any kind. One son, aged 9 and wants help towards his education. Voted £18 in 12 instalments.—Widow aged 35 of L.R.C P Edin, who practised at Edinburgh and died in May 1916 The deceased had developed quite a good practice, and had invested most of his savings (£300) in the purchase of a house. After his death this was let the net proceeds being £50 In addition to this other income £40 Four children ages 10 to 2 years Voted £12 in 12 instalments —Widow aged 65, of M R C.S Eng who practised in Suffolk and Cambridge and died in 1904 Left quite unprovided for and until recently earned a bare income by acting as nurse-companion. About four months ago became ill and is now suffering from paralysis and the small amount of money saved is almost exhausted. Voted £2 and referred to the Guild.—Widow aged 70 of L.R.C.P Edin. who practised at Cardiff and died in 1906 Was left totally unprovided for and is now a chronic invalid. Only income two pensions from other societies of £5. Two children married, and unable to help Relieved 11 times £82 10s Voted £6 in 12 instalments.—Widow aged 79 of L.S A. Lond who practised in Suffolk and died in 1873. Left unprovided for with a large family none able to help One daughter assists in the home. Only income a pension of £30 from Epsom College Relieved four times £22. Voted £12 in 12 instalments.—Daughter aged 83 of M.R.C S Eng who practised at Newton Abbot and died in 1859 Was a governess for many years Income from two annuities £70 Was an annuitant of the Fund for many years but this was discontinued Relieved last year £20 in four instalments Voted £8 in two instalments.—Daughter aged 66, of M.D Edin. who practised at Spalding and died in 1895 Applicant was left with insufficient means and now too old to get employment Only income £34 per annum Relieved once £12. Voted £12 in 12 instalments —Widow aged 59 of M D Glasg who practised in Perthshire and died in 1907 Was left unprovided for and is now practically blind. Son who used to help to keep the home now in the Army Two other sons married and unable to help. Relieved twice, £12. Glasgow branch of the Guild strongly recommends this case Voted £10 —Widow aged 79 of M D Lond who practised in Wimpole-street and died in 1895 Applicant was left with very slender means total only £[illegible] Suffers from rheumatic gout Relieved nine times £56. Voted £10 in two instalments — Widow aged 78, of M R C S Eng who practised at Holderness and died in 1895 Left with a large family and only £30 per annum With the exception of two daughters who help at home the other children are married and unable to help Tries to supplement income by taking in lodgers. Relieved six times £72. Voted £12 in 12 instalments.—Daughter aged 76 of M D Erlangen who practised at Leominster Applicant was left without means and was a chronic invalid and is now a resident in a home for incurables Relieved 14 times £121 Voted £5 in 12 instalments —Daughter aged 64 of M D Lond who practised in London and died in 1887 Applicant is blind, and her only income is a pension from a Society for the Blind Relieved four times £42. Voted 12 in 12 instalments —Daughter aged 65 of F R C S Eng who practised at Chester and died in 1884 Applicant left without means and has endeavoured to earn a living as housekeeper but owing to age cannot obtain a post Relieved five times £12. Voted £10 in two instalments.—Widow aged 76 of L.R.C P Edin who practised in Fifeshire and died in 1913. Applicant was left without means with six children two of whom are still at school and the only one able to help earns £75 per year which is the family's only source of income Applicant has recently been very ill and with the increased cost of living has got into difficulties Relieved once three years ago £10 Voted £20— Daughter aged 64 of M R C S Eng who practised at Bexley Heath and died in 1908 Left without means and always an invalid Receives a little help from a friend and earns a few pounds yearly by needlework. Relieved 12 times jointly with a sister (recently deceased) £194. Voted £18 in 12 instalments —Daughters ages 64 and 56, of M R C S Eng who practised in Cornwall and died in 1873 Only property left them the house in which they live and they try to make a living by receiving paying guests but recently no success fully Relieved seven times £118 Voted £18 in 12 instalments.—Daughter aged 57 of M R C S Eng who practised in Liverpool and died in 1895. Applicant lives with two sisters and one brother none of whom are able to earn much and all are very delicate An uncle pays the rent Relieved seven times £[illegible] Voted £12 in 12 instalments —Widow aged 52, of L.R.C P Edin who practised at Langley and died in 1900 Applicant endeavours to make a living by taking in paying guests but cannot get sufficient to make it pay Lives in own house but it is heavily mortgaged Relieved six times £60 Voted £10 in two instalments —Widow aged 61 of M D Glasg who practised at Birkenhead and died in 1895. Was left quite unprovided for with three daughters and one a chronic invalid. Applicant suffers from neuritis Endeavours to supplement the income earned by the two daughters by taking in lodgers but owing to the high cost of food unable to manage. Relieved seven times £102. Voted £6 in 12 instalments —Widow aged 53 of M D Edin who practised at Newcastle and died in 1896 Applicant was left entirely without means with one young daughter Up to about two years ago when she fractured her leg managed to make a living as nurse-companion but cannot undertake any work now and is dependent on her daughter now married and only able to help a little. Relieved twice £24 Voted £12 in 12 instalments —Widow aged 68, of M.R.C S Eng who practised at Great Marlow and died in 1891 Left with three daughters, ages 49 52, and 55 two of whom are deaf and dumb Only certain income £56 One daughter earns a little as a clerk Relieved nine times £68 Voted £24 in 12 instalments — Daughter aged 57 of M D Lond who practised at St Pancras and died in 1883. Applicant and her mother were left entirely unprovided for and since her mother's death earned her own living as nurse-companion but owing to ill health and age unable to obtain suitable work. Voted £6 in six instalments.—Widow aged 66, of L.R C P Irel who practised in Essex and died in 1896. Since the death of her husband has earned a living by acting as cook. Recently had a serious operation which prevents her from working Only income a small pension from another society Relieved five times £42. Voted £12 in 12 instalments.—Widow aged 67 of L.R.C.P Edin who practised at Port Carlisle and died in 1893 Husband died insolvent and left applicant with five children only one of whom is able to help Earns a little by taking in lodgers Relieved three times, £36. Voted £12 in 12 instalments —Daughter aged 48, of M R C S Eng who practised in Bombay and died in 1873 Applicant endeavours to earn a living by nursing but finds it impossible to make sufficient to keep herself Relieved five times, £64 Voted £12 in 12 instalments.

It was reported that four annuitants had died since the previous meeting, one of whom had received £500 and another £480 The vacancies were filled up Subscriptions may be sent to the honorary treasurer, Dr Samuel West, at 11, Chandos street, Cavendish square, London, W

ROYAL SURGICAL AID SOCIETY.—The fifty fourth annual meeting of this society was held at the Mansion House on Dec. 6th, under the presidency of the Lord Mayor, Sir William Dunn The report was adopted, the Lord Mayor personally testifying to the good work done among the poor by the society He added that the Prince of Wales had become a supporter of the society

IRISH NURSES AND THE COLLEGE OF NURSING, LIMITED.—An Irish correspondent writes "The chief objection taken by Irish nurses to the new College of Nursing, Limited, is professional rather than national, and rests on the fact that membership of the College is open not merely to trained nurses but to those practising any branch of nursing such as mental nursing or massage and that the latter are to have equal voice with fully trained members in the government of the College

THE MENTAL AFTER CARE ASSOCIATION.—The Mental After-Care Association for poor persons, convalescent or recovered from institutions for the insane earnestly appeals for funds to carry on and extend its work The association which is the only one of its kind in the United Kingdom assists cases in all parts of the country in various ways, and more than 30 per cent more applications have been received during the current year than in 1915 Secretary, Miss E D Vickers Church House Westminster

THE L M S S A EXAMINATION.—An action was recently brought by an unsuccessful candidate for the Final Examination of the L.M S S A against the Master and Wardens of the Society of Apothecaries, alleging that he had not had a fair examination, and demanding the return of his fees Judge Rentoul in giving judgment for the defendants described the allegation as preposterous, and said that no examination could have been better or more fairly carried out

TUBERCULOSIS AFTER CARE CAMBRIDGESHIRE ASSOCIATION.—The formation of a Tuberculosis After-care Association for the administrative county of Cambridge was decided on at a meeting held at Cambridge on Nov 18th and attended by representative members of the medical profession Insurance Committee Friendly Societies, and others interested in philanthropic work The decision was the ultimate outcome of a paper read in August 1915, by Mr P C Varrier-Jones acting tuberculosis officer for the county of Cambridge at the Friendly Societies Council Mr F Bunnett stated that the Ancient Order of Foresters had altered their rules so as to admit of sick pay being paid to persons suffering from tuberculosis if they were doing work prescribed as part of their treatment Sir Clifford Allbutt, who presided spoke of the scheme as a very important move in the direction of what many thought was the radical need —to stop infection

Sir James Mackenzie has withdrawn from the central Medical Appeal Board

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS

Reconstruction of the Government

Mr ASQUITH announced on Monday, Dec 4th, that the King had approved of the reconstruction of the Government Mr BONAR LAW having intimated to His Majesty his inability to form an administration, Mr LLOYD GEORGE has undertaken the task with the coöperation of Mr BONAR LAW

Ministry of Pensions Bill

The Ministry of Pensions Bill has been read a third time in the House of Commons

Food Control

No official intimation of the appointment of a Food Controller has yet been made, but an Order of the Board of Trade has been issued this week limiting the number of courses to meals served in public places A further Order prohibiting the eating of meat on certain days is foreshadowed

Central Midwives Board

The report on the work of the Central Midwives Board for the year ended March 31st, 1916, has been presented to Parliament It states that on that date the Midwives Roll contained the names of 40,513 women, an increase for the year of 1644 on the total number appearing on the Roll

Of the total number 21 014 have passed the Board's examination and 9529 have been admitted in virtue of prior certification under Section 2 of the Midwives Act The trained midwives are consequently 30 543 in number and the untrained 9970 the respective proportions being 75 4 per cent. and 24·6 per cent as against 73·6 per cent and 26 4 per cent. in the previous year The percentage of trained midwives who practise as such is relatively small, and may be estimated at less than 22 1 per cent of those on the Roll Of the untrained midwives it is probable that about 53·5 per cent. are in practice though frequently to a small extent only The corresponding figures for 1914–15 were 23 per cent. and 56 per cent. respectively From this it appears that although the number of names appearing on the Midwives Roll increases annually the proportion of practising midwives diminishes This diminution is actual as well as relative

An important passage in the report refers to "covering" It proceeds —

The experience of those engaged in the administration of the Midwives Act shows that the 'covering by medical practitioners of uncertified women acting as midwives is by no means infrequent The most pernicious method of infringing the provisions of Section 1 (2) of the Midwives Act is where the uncertified woman undertakes the case and delivers the patient. She then sends for the doctor who notifies the birth and signs the maternity benefit form but does not examine the patient or attend to her For this the uncertified woman pays him a small fee and if trouble arises the case is claimed to be his although he never heard of the patient before the uncertified woman sent for him and has never seen her since he signed her maternity benefit form Another form of covering less flagrant and consequently more difficult to detect and deal with is where the medical practitioner books the case as his but arranges with the uncertified woman that she shall deliver the patient and sent for him only in case of abnormality or complication arising where his assistance is required to complete the delivery If not so sent for he probably calls during the puerperium and signs the maternity benefit form It is claimed that the uncertified woman was acting as his nurse and that he was unavoidably prevented from conducting the delivery Some local supervising authorities make no effort to deal with this evil others prosecute the uncertified woman but so far as is known to the Board none of them have yet brought the conduct of the medical practitioner to the notice of the General Medical Council or made themselves responsible for proceedings taken against him before that body More than one authority has made representations to the Board on the subject, but has declined to carry the matter further It has been left to the Board to undertake the responsibility of a prosecution before the General Medical Council

HOUSE OF COMMONS

WEDNESDAY NOV 29TH

Repatriation of Invalid Prisoners of War

Answering Mr HUME WILLIAMS Mr JAMES HOPE (Treasurer of the Household) wrote We have proposed to the German Government that British and German officers and men who had been transferred to Switzerland shall be repatriated if their infirmities develop in Switzerland to such an extent as to bring them within the scope of the schedule which governs the repatriation of British and German combatant prisoners of war from Germany and this country respectively It is proposed that suitable cases should be selected by the Swiss medical authorities for recommendation through the delegates in charge of prisoners to the British and German War Offices, with whom the final decision is to rest From the nature of the proposed agreement it is improbable that the number of men repatriated will be considerable

THURSDAY NOV 30TH

Vision Test for Metropolitan Drivers of Vehicles

Answering Mr PRINGLE, who asked whether any periodical vision test existed for drivers of vehicles in the metropolitan area Mr H SAMUEL (Home Secretary) said Public carriage drivers in the metropolitan area are required before they are licensed to produce a medical certificate of fitness in which their fitness as to sight is concerned After they reach the age of 50 a certificate of fitness is required either quinquennially or as often as the licensing authority may deem necessary For drivers generally I have no power to impose any test.

Mr PRINGLE Is it not advisable to have some test in view of the large number of accidents now occurring?—Mr SAMUEL. I am not sure that it is so much a question of eyesight as more light

Appointment of Irish Dispensary Doctors

Mr O'SHAUGHNESSY asked the Chief Secretary for Ireland whether he had seen the opinion of counsel published the other day stating that the Local Government Board for Ireland had no power to veto the appointment of doctors to dispensary districts because they were within the military age—Mr DUKE replied I understand that some question of legality has arisen I am not aware of the opinion to which the honourable Member refers

Venereal Disease and Intemperance

Mr PRATT asked the President of the Local Government Board whether he was suggesting to those local authorities who were preparing schemes for the diagnosis and treatment of venereal disease the desirability of instructional lectures and the publication of information, and whether he was directing their attention to that part of the Report of the Royal Commission on Venereal Diseases where the Commissioners stated that their evidence tended to show that the communication of disease was frequently due to indulgence in intoxicants, and that there was no doubt that the growth of temperance among the population would help to bring about an amelioration of the conditions which their inquiry had revealed—Mr LONG replied The Regulations issued by my Department on this subject empower local authorities to make provision for the giving of instructional lectures, and for the publication of information on questions relating to venereal disease. The circular which accompanied the Regulations has drawn attention to the contents of the Report of the Royal Commission

MONDAY DEC 4TH.

Medical Examination of Recruits

Answering Mr SNOWDEN, Mr FORSTER (Financial Secretary to the War Office) wrote that it had transpired that for a time certain persons, in the desire to avoid military service, were going before several medical boards, sometimes after taking drugs It therefore became a practice amongst military representatives to accept the opinion of the first board as the most reliable The practice of going before several boards had now been stopped

Recruits with Rupture

In reply to Mr MACCALLUM SCOTT, Mr FORSTER said that men with rupture, who were fitted with a truss might be passed for garrison duty abroad or at home

Medical Students and the Army

Answering Mr SAMUEL Mr LONG (President of the Local Government Board) wrote The present arrangements made by the Army Council as to medical students are as follows Fourth and fifth year students are not being called up for ordinary military service First-, second, and third-year students are being called up if fit for general service If not for general service they are being allowed to continue their studies All students allowed to continue their studies as a condition, required to join an Officers Training Corps and to attend a minimum number of parades practice few first-year students are called up, as they are mostly under 19 and come under a class postponing until that age the call of students, medical or other, belonging to an Officers Training Corps They called up mostly obtain commissions First-, second- and third year men previously called but not fit for general service were, under an Army Council instruction issued August relegated to the Army Reserve to return to their studies subject to the condition above referred to

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index)
When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor

BRISTOL ROYAL INFIRMARY—House Physician Salary at rate £120 per annum with board &c

BURNLEY VICTORIA HOSPITAL—House Surgeon Salary £160 per annum with board &c.

CHESTER ROYAL INFIRMARY—House Physician Salary £160 per annum with board, &c

DUMFRIES AND GALLOWAY ROYAL INFIRMARY—Resident House Surgeon and Assistant House Surgeon

GENERAL LYING-IN HOSPITAL, York road Lambeth—Resident Medical Officer for three months Salary £100 per annum with board &c

GLASGOW PARISH COUNCIL EASTERN DISTRICT HOSPITAL, Duke-street.—Resident Assistant Medical Officer Salary £250 per annum, with board, &c

GUY'S HOSPITAL, London, S E.—Assistant in Bacteriological Department Salary at rate of £250 per annum

HAMPSTEAD GENERAL HOSPITAL, Haverstock Hill N W —Pathologist. Salary £100 per annum. Also House Surgeon. Salary £200 per annum with usual residential allowances.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST Brompton.—House Physician for six months Salary 30 guineas.

LEEDS CITY HOSPITALS FOR INFECTIOUS DISEASES AND TUBERCULOSIS —Assistant Medical Officer Salary at rate of £250 per annum, with board &c.

LEEDS PUBLIC DISPENSARY —Resident Medical Officer Salary £200 per annum, with board, &c.

LIVERPOOL, ROYAL SOUTHERN HOSPITAL.—Three House Surgeons (Male or Female) for six months.

LONDON COUNTY COUNCIL SCHOOL TREATMENT CENTRE, Hammersmith W —Ophthalmic Surgeon to the L C C. Eye Treatment Centre Carnforth Lodge Broadway Hammersmith, one half-day weekly Salary £50 per annum. Also Anæsthetist to L C C Throat Ear and Nose Treatment Centre one half-day a fortnight Salary £25 per annum.

LONDON THROAT HOSPITAL, 204 Great Portland-street W —House Surgeon. Salary £50 per annum.

MANCHESTER CITY SANITARY COMMITTEE.—Medical Officer Salary £350 per annum

MANCHESTER COUNTY ASYLUM Prestwich —Locum Tenens Salary £7 7s per week with board &c.

MELBOURNE, AUSTRALIA.—Director to Walter and Eliza Hall Institute of Research in Pathology and Medicine. Salary £800 per annum

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Physician. Salary £200 per annum, with board &c.

ROTHERHAM HOSPITAL.—Junior House Surgeon Salary £150 per annum with board, &c

ROYAL COLLEGE OF PHYSICIANS London.—Milroy Lecturer for 1916.

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL, 234 Great Portland street, W —Resident Surgical Officer

ST GEORGE'S HOSPITAL, S W —Medical Officer to the Venereal Department for six months. Salary at rate of £400 per annum

SHEFFIELD UNION HOSPITAL, Firvale.—Two Female Resident Assistant Medical Officers. Salary £250 per annum, with rations, &c.

SHREWSBURY, SALOP COUNTY COUNCIL.—Temporary Tuberculosis Medical Officer Salary at rate of £500 per annum.

SOUTH AFRICA MENTAL HOSPITAL SERVICE.—Two Assistant Mental Physicians (men only) Salary £400 per annum Also Three Assistant Mental Physicians (men or women) Salary £360 per annum, with board &c.

SOUTH LONDON HOSPITAL FOR WOMEN South Side, Clapham Common S W —Female Medical Officer in Charge of Gynæcological Clinic. Also Female Medical Officer in Charge of Skin Clinic. Also Pathologist, part time only

SOUTHAMPTON PARISH —Resident Assistant Medical Officer for the Infirmary Shirley Warren. Salary £250 per annum with rations, &c.

STOKE-ON TRENT INFECTIOUS DISEASES HOSPITAL, Bucknall.—Female Resident Assistant Medical Officer Salary £200 per annum with board &c.

UNIVERSITY COLLEGE HOSPITAL.—Assistant in the Dermatological Department Salary £200 per annum.

VENTNOR, ISLE OF WIGHT ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST ON THE SEPARATE PRINCIPLE.—Assistant Resident Medical Officer

WALSALL AND DISTRICT HOSPITAL.—Female Senior House Surgeon. Salary £250 per annum, with board &c.

THE Chief Inspector of Factories Home Office London S W., gives notice of a vacancy for a Certifying Surgeon under the Factory and Workshop Acts at Louth, Lincoln

Births, Marriages, and Deaths.

BIRTHS

[illegible]AWE.—On Dec 1st at Limassol Cyprus, the wife of Major H [illegible]shawe D S O., R.A.M.C —twin daughters.

Applic[illegible]on D[illegible] 1st, at Holles-street Dublin, the wife of Lieutenant-now a[illegible]ionel W [illegible]ean R.A.M.C of a daughter

[illegible]oed [illegible]—On Dec. 2nd, Margaret the wife of Dr W McLean, [illegible]dical Inspector Board of Trade Liverpool, of a daughter

MARRIAGES

FRASER—GALBRAITH —On Nov 30th at S Simon's Milner-street S W., Kenneth Grant Fraser L.R.C P & S Edin. Temp Captain, R.A.M C., to Charlotte Eileen, younger daughter of the late Henry Galbraith Archdeacon of Glendalough.

JAMESON—BAINES —On Dec. 1st, at St John's Church, Putney George Dearden Jameson Captain, R.A.M C., to Phyllis only daughter of Mr and Mrs. Baines, of Carlton road, Putney-hill.

TRINCA—COLLIER.—On Nov 30th, at St Barnabas Leicester by the Rev A. E Manvell, Captain A. J Trinca, R.A.M.C of Melbourne, Australia, to Adela Margaret eldest daughter of Mr and Mrs J W Collier of Fairholm, Uppingham road Leicester

WILLIAMSON—KEITH.—On Nov 22nd at St. Philips Kensington, Captain Maurice Joseph Williamson R.A.M.C., to Dorothy daughter of the late Dr Keith, Aboyne

DEATHS

MCTAVISH —On Dec 2nd at Kilmartin, Kingswear Devon Brigade Surgeon Alexander Campbell McTavish late 60th Rifles and 17th Lancers

SWAIN —At The Crescent Plymouth William Paul Swain F R C S., aged 82 years

N B —A fee of [illegible] is charged for the insertion of Notices of Births Marriages and Deaths

Notes, Short Comments, and Answers to Correspondents.

JEAN PITART, SURGEON, MEDICAL REFORMER, AND POET

AT a recent séance of the French Academy M Antoine Thomas read some notes on the life of Jean Pitart, a surgeon and poet of the thirteenth century in Paris concerning whose career there is a good deal of uncertainty Puccinotti, in his "Storia della Medicina, alleges that Lanfranc of Milan found in Paris a surgical college, established there in 1271 by Jean Pitart, but Lanfranc himself, who speaks of his hearty welcome by the French medical men when on a visit to Paris says nothing of Pitart The date and place of Jean Pitart's birth are unknown, probably he came from Normandy and the close intimacy between him and Henri de Mondeville confirms this view François Quesnay says he died, aged 77, in 1315, but there is evidence that he was alive in 1325, because in that year the Comte de Valois in his will bequeathed 50 livres to Pitart

The first authentic record of Pitart is at Paris in 1292, when he pays 20 sous as an impost as a resident in the Rue Neuve Notre-Dame By 1293 he had risen to the rank of court surgeon for in that year he was in receipt of fees as such from Philippe le Bel In 1303 he accompanied Philippe IV to the South of France, for an account of royal expenditure at Toulouse shows that, for 40 days' service, he was paid 7 livres 13 sous and certain apparel In 1308 he was with Robert d'Artois at Conflans, and in 1312 he went to Artois to attend a certain countess, doubtless successfully, for he received for his services on that occasion no less than 100 livres, a large honorarium in those days, also robes for himself and Madame Pitart He continued to be the royal surgeon under Louis X and Philippe V, for the latter presented him with property at Cotentin and elsewhere. Finally, in 1327, Charles IV calls him his "dilectus cirurgicus" in an act giving Pitart further emoluments

Pitart's decease seems to have occurred at the end of 1328 An interesting event in his long career was his appointment as president of a committee decreed in 1311 by Philippe IV to inquire into the irregularities occurring in the surgical profession in Paris The committee were empowered to register those persons worthy of exercising the duties of the craft, which had been usurped without any proper qualification by many barbers These amateurs had been rounded up by Etienne Boileau, Prefect of Paris, in 1301, when 29 of them were prohibited from practising unless they passed some examination Pitart probably had a hand in preparing the preamble of the edict promulgating the commission, for, as will be seen from the quotation, it condemns the abuses arising from the actions of uneducated persons, whilst flattering the citizens of Paris upon the erudition of its true scientists —

"Ne in villa Parisiensi, quæ proprie locus est fluentissimi fontis scientiæ, quæ etiam scientes pavit et, in utero recipiens ignorantes, tandem suæ fontis sapientiæ germinosis rigatos rivales diversarum facultatum reddit scientiis insignitos, talia de cetero perpetrentur"

M Thomas designated Pitart a poet, one proof of his capacity in that profession being four lines of verse inscribed upon a well which he had caused to be dug in the Cité quarter of Paris, this was still in existence in the seventeenth century The distich ran as follows —

Jehan Pitard en ce repaire
Chirurgien le-roy fit faire
Ce puits en (l'an) mil trois cent dix,
Dont Dieu lui doint son paradis.

Pitart excavated the well to prevent the neighbours drinking the dangerously polluted Seine water, and obviously considered the work meritorious M. Thomas is also satisfied that Pitart wrote a poem, "Le Dit de Bigamie," in which he refuted the views of those who held that a widower who re-married was a bigamist Jean Pitart appears to have been a man of sound sense as well as of learning which was eminent in its day

A CHILD WELFARE ANNUAL

THE Child Welfare Annual edited by Dr T N Kelynack (John Bale Sons and Danielsson, Limited 1916 Pp 346 Price 7s 6d) claims to be an authoritative guide and directory of the chief philanthropic and business agencies in the United Kingdom concerned with the care of children The volume contains a number of original communications on the various aspects of child welfare work by several well known authorities, thus Dr J W Ballantyne contributes a short article on Pre maternity

Practice, Mr Benjamin Broadbent another on the History of the Evolution of Child Welfare Work, and Mr B Seebohm Rowntree another on Childhood and Poverty These 24 articles occupy one-third of the book. The rest of the volume is devoted to short accounts of the different schemes for child welfare work originated throughout the kingdom, and, finally, there is a directory of the National Associations, societies, orphanages, homes, and other institutions dealing with the many aspects of child welfare work It is a volume with which no philanthropic society can afford to dispense

RESIDENT MEDICAL OFFICERS AT CHILDREN'S HOSPITALS

To the Editor of THE LANCET

SIR,—Will you kindly grant me a few lines in your valuable columns to thank the authorities of Paddington Green Children's Hospital for their very candid advertisement in THE LANCET of Nov 25th for applications for the posts of house physician and house surgeon there? They say there As this is a children's hospital applications from Indian or Egyptian students cannot be entertained It is certainly gratifying to find someone at least who will say such things out I am an Indian myself and happen to be the resident medical officer at the East London Hospital *for Children*, and the house physician here is an Indian too It is beside the point to enter into any comparison between the two hospitals

I am quite aware of the invidious position we Indians stand in with regard to English hospitals, even as students There has not been, to my knowledge, any reason given out yet for this exclusion, and I am obliged to the authorities of Paddington Green Children's Hospital for having supplied it without having been, as far as I know, under any compulsion to do so Egyptians and Indians alike ought to be grateful they need waste no time over Paddington Green Children's Hospital, as they have ever so often done applying for hospital vacancies in Great Britain

I would recommend all Egyptians and Indians to get a copy of THE LANCET of Nov 25th were it only to take a cutting out of it and keep it for future reference

I am, Sir, yours faithfully,

K. S BHAT,
Resident Medical Officer East London Hospital
Shadwell E Nov 27th 1916 *for Children.*

To the Editor of THE LANCET

SIR,—An amusing and curious statement has been made in an advertisement column of a recent issue of THE LANCET by the secretary of Paddington Green Children's Hospital "As this is a children's hospital applications from Indian or Egyptian students cannot be entertained

I can quite understand anybody who says frankly, 'I do not want you,' but why on earth *Children's* Hospital has been put forth as an excuse for excluding Indians, I do not quite follow Does it mean that such people are specially unsuitable for children's hospitals because children and their mothers or relatives can't stand Indian residents? If it is really that, then I can assure Mr Pearce he is entirely mistaken I am in a like institution myself, and I know several Indian doctors who have acted in similar capacities in other places, and there are none who would say that they have not acquitted themselves well and creditably, and without ever being in the least little bit the cause for falling off of attendance at these places simply because of their nationality *Per contra*, the daily attendance of patients has gone up in more than one instance Besides, I have noticed—and it is much to their credit—that the patients themselves have far less prejudice against us than many of the people at the head of the institution And what is more, they feel quite satisfied with the treatment they get from Indian residents But if it is a question of mere prejudice—and everyone is entitled to his own opinion—I have very little to say Only, why specify this publicly in black and white and thus cast a slur on a whole nation for no fault of its own? Why make these appointments so glaringly exclusive? If I do not like anybody, I may not take him But why publicly ban him like this, especially when he does not deserve it? There is such a thing as politeness, and even Indians deserve it Besides, are Indians so very objectionable after all? How is one to know, if one never deals with them? From their colour? Preposterous!—I remain, Sir, yours faithfully,

AN INDIAN DOCTOR

Nov 23th, 1916

To the Editor of THE LANCET

SIR,—The human child although by instinct quick to recognise and take advantage of the varying personalities of the grown ups who minister to its needs, does not untaught develop any prejudice about the colour of their skin The sick child is grateful to any kind hand that ministers to its comfort whether white, pink, yellow, or black It is therefore unnecessary on this ground for the secretary of a children's hospital to warn Indian or Egyptian students from applying for resident posts in the hospital The problems of West and East must be faced, and the medical profession will doubtless have its special contribution to make to their solution But nothing will be gained by presuming prejudice where none exists and anticipating the exercise of reasoning by poisoning the springs of thought I am, Sir, yours faithfully,

Dec. 2nd 1916. LEUCODERMA.

DANGEROUS PRACTICAL JOKES

AT an inquest recently held at Hampstead it was proved that the deceased, who suffered from tuberculosis and heart disease, had died as the result of a practical joke by a fellow workman A lad, 15½ years of age, admitted that he had connected the door handle of a cabin entered by the deceased with an electrical fuse-box, with the effect that any person who turned the handle would naturally receive a shock That the first person to do so was ill suited to receive such a shock was a circumstance which the lad in question might perhaps be excused for not realising Workmen and boys, however, who handle dangerous forces such as steam electricity, and compressed air habitually, are apt to be careless of the results when they wish to play tricks upon their fellows There is an old proverb about playing with edged tools which might be applied in their case, for no doubt self reproach must be felt by them when a comrade is killed, or even dangerously injured, through their desire to amuse themselves at his expense Who first applied the term "practical jokes" to the manifestations of humour with which it is associated we do not know, but they seem to have had their greatest vogue in the latter half of the last century Many were harmless and were at times elaborated with great skill and ingenuity, others were simpler and rougher, and were often intentionally painful to those upon whom they were inflicted. The names of E A. Sothern and J L Toole, both comedians with a wide circle of friends, will always be associated with stories relating to the former class, and many more or less prominent sportsmen and members of bygone "Society" could no doubt be mentioned by their survivors as having played wild pranks which would put in the shade the feats in the same direction of the youths of the present day Some of our senior physicians and surgeons also could recall incidents of their student days in which they can hardly now realise that they once participated Latterly practical jokes of the painful class and of an organised description have chiefly been devised for the benefit of unpopular members of a regimental or ship's mess, but this sort of thing will not survive the war, because the men without the popular qualities have shown themselves time and again the best thinkers and fighters

AN ARTISTIC ALMANAC

Messrs Abdulla and Co, cigarette manufacturers, have published an almanac to be sold at 1s 4d a copy, and of that sum 1s will be paid to the British Red Cross Society Among the artists whose work is produced in black and white or colour are the following C Percy Bowyer (South Africa), Edouard J Claes (Belgium) I Jalea (Rumania) R G Mathews (Canada), F Angeli Radovani (Serbia), Harry Rountree (New Zealand) Paul Thiriat (France) Alcide Davide Campestrini (Italy), E A. Cox, R B A. B S W (England), Kazunori Ishibashi (Japan), Fred Leist (Australia) Gerald Moira (Portugal), Michael Sevier (Russia), and Frank Dadd, R I

VITAL STATISTICS OF ASHANTI

Mr Arthur J Philbrick, acting Chief Commissioner of Ashanti (which is administered as a dependency of the Gold Coast Colony), states in his annual report that there has been a large increase of the population since the Census of 1911, when the total was 287,814 (141,231 males and 146,583 females) The inhabitants of Kumasi the chief town, are estimated to number 24,000 or more The general health during 1915 was good on the whole, and there were no epidemics among the people The European community, numbering about 400, consists exclusively of officials, merchants, miners, and missionaries Eight officials and 4 non-officials were invalided during the year, 33 Europeans were admitted to hospital and 119 treated outside, the prevalent disease being malaria of a mild type 1097 natives were admitted to hospital and 10,425 treated outside A native hospital at Kumasi—a model establishment of its kind—was completed in November A well equipped laboratory has recently been built in connexion with the office of the medical officer of health The rainfall at Kumasi in 1915 was 52 18 inches the mean temperature 76 85° F, and the degree of humidity 86 24 The climate is not suited for permanent European settlement, the average stay in the country is 12 months after which recuperation in a more bracing climate is necessary Mr. Philbrick notes with satisfaction the eagerness of the villagers to improve the conditions under which they live

ANTHRAX INFECTED SHAVING BRUSHES

AT a meeting of the Health Committee of the City of Liverpool, held on Nov 30th Dr E W Hope, the medical officer of health, reported that he had found two "imitation badger" shaving brushes infected with anthrax He thought it desirable to warn the public not to buy shaving brushes answering the following description One had a plain wooden black handle and the other had a white metal handle with a small mirror at the top It was suggested that these brushes were but another example of the diabolical tactics of the enemy, for the black handled brush came from the continent, while inquiries are being made to trace the foreign place of origin of the other It was also stated that no process could be relied upon to disinfect a brush which did not at the same time undermine its utility While the bacillus of anthrax is readily destroyed, the spores have a high degree of resistance to heat and chemical agents, but it seems probable that while animal skins are most difficult to disinfect a shaving brush could be sterilised by long exposure in boiling water, say for two hours, or immersion for one hour in perchloride of mercury solution (1 500) for at least an hour It has been shown however, that the bristles imprisoned in the cement used in the brush may still show anthrax after this treatment, and heat may melt this cement and spoil the brush, while a liquid disinfectant would not reach the infected parts The whole question calls for careful inquiry and the adoption of measures directed against the importation of such disease bearing brushes Similar cases have already been reported in THE LANCET

BY an Order in Council issued on Wednesday a medical practitioner who prescribes cocaine otherwise than in accordance with the regulations is liable to summary punishment under the Defence of the Realm Act

Medical Diary for the ensuing Week.

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street W

MEETINGS OF SECTIONS

Tuesday Dec. 12th

PSYCHIATRY (Hon Secretaries—Bernard Hart G F Barham): at 4.30 P M

A CLINICAL MEETING will be held at the Maudsley Hospital Denmark Hill.

Major F W Mott: (1) Demonstration of Cases of Shell Shock (2) Demonstration of Macroscopic and Microscopic Changes in the Brains of Fatal Cases.

Arrangements will be made for members to see over the hospital

N B —The Maudsley Hospital may be reached *viâ* the Bakerloo Tube to the Elephant and Castle and thence to Denmark Hill by tramway also by motor bus 12A, from Piccadilly and by rail from Victoria or London Bridge to Denmark Hill

Wednesday Dec. 13th

SURGERY (Hon Secretaries—Raymond Johnson, V Warren Low): at 5 P M.

Paper

Miss Frances Ivens M.S : A Clinical Study of Anaerobic Wound Infection with an Analysis of 107 Cases of Gas Gangrene

N B —Members of other Sections are invited.

Friday Dec. 15th.

STUDY OF DISEASE IN CHILDREN (Hon Secretaries—A. S Blundell Bankart, E A Cockayne C P Lapage): at 4.30 P M

Cases will be shown

Short Paper

Dr F Parkes Weber: A Case of Cyclic Vomiting with Acidosis

ELECTRO THERAPEUTICS (Hon Secretaries—E P Cumberbatch Robert Knox): at 8 30 P M

Papers

Dr Finzi: Pharyngeal Pouches

Dr Salmond The Changes observed in Osteomyelitis of Different Origins.

Papers will also be read by Dr Jordan and Dr Martin Berry

MEDICAL SOCIETY OF LONDON 11 Chandos-street, Cavendish square W

MONDAY —8.30 P M A meeting devoted mainly to Demonstrations of the Principles of the Re-education of the Wounded The following gentlemen will take part:—Mr A Lawson The Work being done for the Blind at St. Dunstan's Mr F D Wood A R A.: Facial Restoration Mr J B Mennell: Limping and the Re-education of Walking Mr McMahon: The Treatment of Shell shock Stammering and Dr A Bradford

HUNTERIAN SOCIETY at the Royal Society of Medicine 1 Wimpole-street W

WEDNESDAY —5 P M Paper:—Dr R Hingston Fox: The Use of Antimony in Ancient and Modern Medicine

SOCIETY OF TROPICAL MEDICINE AND HYGIENE 11 Chandos street Cavendish-square, W

FRIDAY —5.30 P M Paper:—Dr H H Scott: The Vomiting Sickness of Jamaica.

ILLUMINATING ENGINEERING SOCIETY House of the Royal Society of Arts 18, John street Adelphi W C

FRIDAY —5 P M Mr L Gaster: War Economies in Lighting

LECTURES, ADDRESSES, DEMONSTRATIONS, &c

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith road W

MONDAY —2 P M. Medical and Surgical Clinics X Rays Mr Gray: Operations Mr B Harman: Diseases of the Eye. Dr Simson: Diseases of Women.

TUESDAY —2 P.M. Medical and Surgical Clinics X Rays Mr Baldwin: Operations Dr Banks Davis: Diseases of the Throat, Nose and Ear Dr Pernet Diseases of the Skin.

WEDNESDAY —10 A.M Dr Saunders: Diseases of Children. Dr Banks Davis Operations of the Throat, Nose, and Ear 2 P.M. Medical and Surgical Clinics X Rays Mr Pardoe Operations Dr Simson: Diseases of Women

THURSDAY —2 P.M. Medical and Surgical Clinics X Rays Mr Gray: Operations Mr B Harman: Diseases of the Eye.

FRIDAY —10 A.M Dr Simson: Gynæcological Operations 2 P.M. Medical and Surgical Clinics X Rays Mr Baldwin: Operations. Dr Banks Davis: Diseases of the Throat, Nose and Ear Dr Pernet: Diseases of the Skin.

SATURDAY —10 A.M, Dr Saunders: Diseases of Children Dr Banks Davis: Operations of the Throat Nose, and Ear Mr B Harman Eye Operations 2 P M Medical and Surgical Clinics X Rays Mr Pardoe: Operations

NORTH EAST LONDON POST GRADUATE COLLEGE, Prince of Wales's General Hospital Tottenham N

MONDAY —Clinics:—10.30 A.M. Surgical Out patients (Mr E Gillespie) 2.30 P.M Medical Out-patients (Dr T R Whipham): Gynæcological Out patients (Dr Banister) 3 P M., Medical In patients (Dr R M. Leslie)

TUESDAY —2.30 P.M., Surgical Operations (Mr Carson) Clinics —Medical Out-patients (Dr A. G Auld) Surgical Out-patients (Mr Howell Evans) Nose Throat, and Ear Out-patients (Mr C H Hayton) Radiography (Dr Metcalfe) 3.30 P M Medical In patients (Dr A. J Whiting)

WEDNESDAY —Clinics:—2.30 P.M Throat Operations (Mr C H Hayton) Children Out-patients (Dr T R Whipham) Eye Out-patients (Mr R P Brooks) Skin Out-patients (Dr H W Barber) 5.30 P M Eye Operations (Mr R. P Brooks)

THURSDAY —2 30 P M Gynæcological Operations (Dr A. E Giles) Clinics —Medical Out-patients (Dr A. J Whiting) Surgical Out-patients (Mr Carson) Radiography (Dr Metcalfe) 3 P M. Medical In patients (Dr R. M Leslie) 3.30 P.M. Special Demonstration —Dr J Metcalfe: Screen Demonstration of X Ray Diagnosis of Cardiac and Pulmonary Lesions

FRIDAY —2.30 P M Surgical Operations (Mr Howell Evans) Clinics:—Medical Out-patients (Dr A G Auld) Surgical Out patients (Mr E Gillespie) Eye Out-patients (Mr R P Brooks)

LONDON HOSPITAL Mile End road E

THURSDAY —11 A.M Dr J H Sequeira Early Diagnosis and Treatment of Syphilis (Lecture IV) In connexion with this lecture Dr J McIntosh will give a Practical Demonstration of the Examination for Spirochætes and Wassermann Test.

METEOROLOGICAL READINGS

(Taken daily at 8.30 a m. by Steward's Instruments)

THE LANCET Office Dec 1st 1916

Date	Rain fall.	Solar Radio in Vacuo	Maximum Temp Shade	Min Tem	Wet Bulb	Dry Bulb	Remarks
Nov 30		45	41	40	39	40	Overcast
Dec. 1		42	42	32	32	33	Overcast
2		44	42	33	39	40	Overcast
3		42	42	39	40	40	Overcast
4		57	41	34	33	34	Overcast
5		43	41	34	34	36	Cloudy
6		47	43	36	35	36	Cloudy

Other information which we have been accustomed to give in these 'Readings" is withheld for the period of the war

The following journals magazines, &c. have been received:— British Dental Journal Journal of Nervous and Mental Disease Therapeutic Gazette Dominion Medical Monthly Practitioner British Journal of Dental Science New Zealand Medical Journal Indian Medical Gazette

EDITORIAL NOTICES

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff It is urgently necessary that attention should be given to this notice

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office

Lectures original articles, and reports should be written on one side of the paper only, *and when accompanied by blocks it is requested that the name of the author, and if possible of the article, should be written on the blocks to facilitate identification*

Letters whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication

We cannot prescribe or recommend practitioners

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub Editor"

We cannot undertake to return MSS not used

Offices 423, STRAND, LONDON, W C

MANAGER'S NOTICES

ALTERATION IN THE PRICE OF "THE LANCET"

INCREASED war expenses and cost of production necessitate an increase of the price of THE LANCET Commencing with the first issue in the New Year, the price will be 8d *instead* of 6d The rates of subscription will remain as revised in October

TO SUBSCRIBERS

WILL Subscribers please *note that only those subscriptions* which are sent direct to the *Proprietors of* THE LANCET at their Offices, 423 Strand, London, W C, are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c, should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect

TO COLONIAL AND FOREIGN SUBSCRIBERS.

Subscribers abroad are particularly requested to note the rates of subscriptions given on page 4

The Manager will be pleased to forward copies direct from the Offices to places abroad at the rates shown, whatever be the weight of any of the copies so supplied

BOOKS, ETC, RECEIVED

MASSON ET CIE, Paris

Les Blessures de l Abdomen Par J Abadie (d Oran), Correspondant *National de la Société de Chirurgie* Chirurgien des Hôpitaux. Avec Préface du Dr J L. Faure Price 4 fr

Radio-diagnostic des Affections Pleur-opulmonaires. Par F Barjon *Médecin des Hôpitaux de Lyon* Price 6 fr

Les Formes Cliniques des Lésions des Nerfs. Par Mme Athanasio Benisty Interne des Hôpitaux de Paris (Salpêtrière) Avec Preface du Professeur Pierre Marie. Price 4 fr

Les Séquelles Ostéo-Articulaires des Plaies de Guerre. Par Aug Broca, Professeur d Anatomie Topographique à la Faculté de Médecine de Paris Price 4 fr

METHUEN AND CO London

Crowley's Hygiene of School Life By C W Hutt, M.A., M D Cantab, D P H Oxon Price 3s 6d net

Raymond or Life and Death. By Sir Oliver J Lodge. Price 10s 6d net

SIMPKIN MARSHALL, HAMILTON, KENT, AND CO, London. (HILTON AND CO Calcutta.)

Materia Medica and Therapeutics By R. Ghosh L.M.S Cal Univ Edited by B H Deare, Lt. Col. I M S., with assistance of B N Ghosh, F R F P S Glasg New edition. Price 7s 6d net.

UNIVERSITY OF LONDON PRESS, London

University of London Calendar 1916–17 Price 6s net. Regulations for Internal Students Regulations for External Students

UNWIN T FISHER, London.

Rhymes of a Red Cross Man. By R. W Service Price 3s 6d net.

With the Russian Wounded By Tatiana Alexinsky With Introduction *by Gregor Alexinsky Translated by Gilbert Cannan.* Price 2s 6d. net.

A Hausa Botanical Vocabulary By John M Dalziel, M D, B Sc., D T M *West Africa Medical Staff* Price 5s. 6d net.

Communications, Letters, &c., have been received from—

A—Ardath Tobacco Co Lond Anglo-French Drug Co Lond.; Dr J K. Adhya, Lond. Anglo-Russian Press Service, Lond. Messrs Arnold and Sons, Lond.; Auxiliary R A.M.C Funds, Lond., Sec. of

B.—Mr G Brown, Exeter Messrs Butterworth and Co., Lond. Dr Gabrielle Breeze Tangier Messrs Burnside Ealing Sir Wm. H Bennett K.C V O Lond. Mr G Billing Blackpool Messrs Baillière Tindall and Cox Lond.; Dr S A. Bonnerjee, Lond.; Dr S J McC Bradshaw Dr G B Brown, Sidmouth Dr F A. Brooks, Felixstowe; Mr W Bryce, Edinburgh Dr Upendra nath Bramachari Calcutta; Capt. C Ball R.A.M C; Dr H H. Bashford Lond.; Miss E F Boultbee, Lond Messrs Burroughs Wellcome and Co, Lond. *British Drug Houses Co* Lond.; Mr K S Bhat, Lond, Capt. J A. Bennett, R.A.M C Surg General Sir David Bruce C B, Lond. Mr H Brown Lond

C—Dr E A. Cockayne Lond. Messrs J and A. Churchill, Lond; Mr L D Cohen Lond Dr W S Clark Lagos Chadwick Trust, Lond Cheadle Royal Sec. of Dr C Clapham, Mayfield Dr F Charlesworth, Lond. Dr L M S Clark, Lond. Capt. J R. Collins, R.A.M.C

D—Messrs W Dawson and Sons Lond. Médecin Major J Dumont Dumfries and Galloway Royal Infirmary Dumfries Sec. of Mr G W Dryland Kingston *Devonshire Hospital* Buxton Gen Supt. and Sec. of Capt. G Davis R.A.M.C

E—Dr W M Elliott, Glasgow Mrs H A. Edmunds Brockweir *The Edith Cavell Homes of Rest for Nurses Lond.* Chairman of Dr A. Eastwood Lond Messrs E Evans and Sons Shanghai

F—Lieut.-Col O G Fagan Prof I Fisher New Haven, Conn. Mr L. Franklin, Southwick Dr T Fisher Lond.; Mr J D Forrester Peebles Mr W E Franklin Newcastle on Tyne *Dr R H. Fox, Lond.*; Dr V Feldman Lond.; Messrs Fletcher Fletcher and Co Lond. Capt S *Fenwick* R A.M.C Factories Chief Inspector of Lond Dr R. F Fox Lond, Mr W E Fry Lond

G—Mr H S Gettings Lond Messrs. C Griffin and Co Lond. Messrs W and A Gilbey, Lond; Capt. W E Guest, C.A.M C; Mr E J Gordon Winterton, Dr A. W Gardner, Shrewsbury Messrs. George, Son and Davies Cardigan.

H.—Dr W B Haddad Cairo Dr A. J Hesterlow Negapatam Major A. F Hurst, R.A.M.C; Dr J Haddon Denholm; Mr E M Harvey Lond. Mr J T Henderson Pietermaritzburg Mr C T W Hirsch, Lond Dr T F Harwood Lond. Dr W F Hale, Ropp Lieut. Col D C Hamilton R A.M.C (T) Dr C E Hetherington Londonderry Prof M. Hartog Cork; Messrs A. Heywood and Son Manchester Hot Mineral Springs, Bath Director of

I—Institute of Journalists Lond.

J—Jeyes Sanitary Compounds Co Lond. J P A.; *Journal of the Royal Naval Medical Service* Lond, Editor of; Messrs Walter Judd Lond.

K.—Messrs. H. S King and Co Lond. Dr King West Derby Prof H R Kenwood Lond.; Mr S M Kaka, Lond. Miss K. Lond. Mr D Kennedy Dublin.

L.—Dr C E Lea, Manchester Messrs H K. Lewis and Co, Lond.; Leeds Public Dispensary Sec. of; Local Government Board, Lond., Sec. of; Messrs Lever Bros, Port Sunlight Leeds City, Town Clerk of Dr S M Lawrence Gravesend Messrs Leslie s, Lond. Messrs E and S Livingstone Edinburgh; London County Council, Clerk to the Messrs Longmates Lond. Mr P Lockhart Mummery Lond. Mr N Langovoi Moscow London Throat Hospital Sec. of

M.—Capt. J A. Matson R.A.M C Mr C McCay Messrs J *Maclehose* and Sons Glasgow Mr W Martindale, Lond.; Messrs C Mitchell and Co Lond; Fleet-Surg J Menary R.N Messrs J Menzies and Co Glasgow; Mr L J P Mordaunt, Beaufort British North Borneo Messrs. Mace and Haldane Lond. Maltine Manufacturing Co, Lond. Mr R. Maurice Lond Mr C A. Morton Clifton Dr Miller Lond Metropolitan Asylums Board Lond., Clerk to, Dr R Morton Lond. Medical Society of *London Registrar of*

N—Sir George Newman Lond. Dr F P Nunneley Brighton Messrs F Newbery and Sons, Lond. National Filling Factory, Hereford Chief Acct. of; New Hospital for Women, Lond. Sec of Dr C R. Niven Everton

O—Lieut. Col. J Oldfield, R.A.M.C

P—Capt. J Proctor, R.A.M.C Mr J H Parsons Lond.; Messrs Pierson, Morrell and Co, New Barnet

R.—Lieut. W Roche, R.A.M C; Capt. F P P Rouse I M S (retd) Capt. W H R. Rivers R.A.M.C; Royal Surgical Aid Society Lond., Sec. of Registrar General for Scotland Edinburgh Surg.-Gen H D Rolleston, C B; Mr G M. Richards Shrewsbury; Royal Society of Arts Lond.; Royal Institution of Great Britain Lond., Sec. of Royal Academy of Medicine in Ireland, Dublin Staff-Surg B S Robson R N Mr J E Rivers *The Ration*, Reading Editor of

S—Col. C J Symonds A.M.S Dr G A. Sutherland Lond Capt. C P Symonds, R.A.M C; Soldiers and Sailors Free Buffet, Lond., Commandant of Messrs. Southall Bros. and Barclay, Birmingham; Mr W B Saw Lond Smith's Advertising Agency Lond. Dr C B Steinke Akron Sheffield Guardians, Clerk to the, Messrs A. W Shaw and Co., Lond Southampton Guardians, Clerk to the.

T—Dr H M Turnbull, Lond.; Dr J Tatham Old Oxtead; Mr H Terry Northwich

V—Mr E Veitch Edinburgh; Victoria Hospital Burnley Hon. Sec. of.

W—Mr J H Walker, Mirfield; Mr E S Weymouth, Lond. Messrs. J Wright and Sons, Bristol Dr G Ward Sevenoaks; Dr E W A Walker Oxford; Mr E B Watts, Liverpool; Mr S Walton Lond., *West London* Hospital Post-Graduate College, Dean of

Letters, each with enclosure, are also acknowledged from—

A—Ashton under Lyne District *Infirmary Sec. of* Messrs Allen and Hanburys Lond.; Dr W J W Anderson, Canton Mr E L Allum Northampton; Miss L Ackroyd, Lond.

B.—Bishopstone House Bedford *Brentford Guardians Clerk to* the Dr C A. Beck Barton-on Humber Mr H. A. V Bourier *Tadworth Messrs. C* Birchall Liverpool Borax Consolidated, Lond.

C—*Dr I D Chepmell* Worthing Messrs J and A. Carter, Lond.; Capt. A. M. Clark, R.A.M C Dr A. Caddy Calcutta; Church Army, Lond. Chief Acct. of; Chester Royal Infirmary Sec. of; *Messrs Constable* and Co Lond Surg D C Crawford, R N V R; Sir John Collie Lond. Messrs Cargills Glasgow Mr J W A. Cooper Maghull

D—Messrs. *Darley Cumberland*, and Co Lond. Director of Education, Khartoum Miss Durham Lond

E.—Erasmic Co Warrington

F—*Dr P W Freyer* Cleggan Messrs Fannin and Co Dublin; Messrs Fairchild Bros and Foster Lond., Dr P Fildes, Lond

G—Monsieur J Gamber Paris Grant College Medical Society Bombay Hon Sec. of; Mrs Goodwin Diss Dr J W Geddes Middlesbrough G P M

H—Capt. P Hayes, R.A M C Capt. B A. R Huxtable R.A.M.C., Fleet Surg Home R.N

L—Mr Ingram Dufftown Ilford Education Committee, Treas *to* the; Miss Ivens

J—Mr. R. T Jones, Harlech Mr J E Jewell Lond, J L H Dr A. Hill Joseph Bexhill-on Sea.

K.—Dr F T Keyt Hong Kong Capt. T Kelly R A.M.C

L.—Mr F W A. Logan, Cathcart; Dr T Lumsden Lond

M—Mr T C Maxwell Freetown Messrs J Menzies and Co Edinburgh M. S J; *Dr C Major*, St. Brelade Dr E J Miller Suva, Fiji

O—Capt. E O Connor R.A.M C

P—Mr J H. Pringle Glasgow Mr C Y Pearson Cork; Messrs W Porteous and Co., Glasgow Messrs Paterson, Millbrook Mr G R. Pillai Tinnevelly Town

Q—Queen *Mary's Convalescent* Auxiliary Hospital Lond, Hon. Sec of.

R.—Mr R O Rumbelow Lond., Mr H M Riley Leicester; Major S Rowland R.A.M.C

S—Messrs Saward Baker and Co Lond; Sidmouth Urban District Council Clerk to the; Capt. H F Strickland R.A.M C Dr T Shufflebotham, Newcastle Dr F M. T Skae Kirkwall Dr T J Selby Prodsham

T—Messrs. C Taylor and Co., Lond; Messrs. D P Tarapore-vala, Sons and Co Bombay

V—Messrs Van Houten Lond.; Mr P C Varrier Jones Cambridge

W—Dr M Watson Klang F M S Messrs. A. J Wilson and Co. Lond. Mr A Wilson Lond

Y—York Medical Society, Sec. of Messrs Alexander Young Lond

An Address

ON

THE HYGIENIC LESSONS OF THE WAR.

Delivered at University College London,[1]

BY HENRY R KENWOOD, M.B EDIN, D P H, F R S E,

TEMPORARY LIEUTENANT COLONEL, ROYAL ARMY MEDICAL CORPS
CHADWICK PROFESSOR OF HYGIENE AND PUBLIC HEALTH
IN THE UNIVERSITY OF LONDON

SURGEON GENERAL RUSSELL, LADIES, AND GENTLEMEN,—It may be asked "What have war and hygiene in common seeing that the aim of one is to conserve human life and that of the other is to destroy it?" The answer is that warfare is dependent upon healthy human material, and that its lessons have often prepared the way to hygienic progress in civil communities Sir Alfred Keogh has directed our attention to notable instances of the connexion between sanitation and efficiency in war and to the fact that the absence of sanitation has wrecked armies Therefore Hygiene enters the field with Mars, and she is amply proving the value of her services in the present supreme test The war will repay her for these services if the lessons it has taught the nation are not disregarded

One gratifying lesson of the war is that civilisation in bringing refinement and increased sensibility has robbed us of nothing which had true power and nobility in the earlier days of our development, that man stands in no need of warfare for the development of his nobler traits—he need not be brutal in order to be brave That the virtues called forth in war will die out if there is no war is the shallow and false philosophy of a German professor ignorant of human nature It is conceivable that such virtues might become attenuated in a population which had to sustain no fight for a living and to meet no family calls for self sacrifice and devotion to ideals but no such population exists and surely it takes the German mind to doubt whether there can be sufficient scope for the exercise of such virtues in times of peace A very large proportion of those who are at present fighting had never previously contemplated even the possibility of active participation in warfare yet such have not shown any less self sacrifice or valour than the war imbued Germans Nevertheless military discipline and a soldier's training are good for every young man and for this reason alone I would vote for a compulsory period of military training in this country Surely the war by bringing so many men under military discipline and by calling for great sacrifices for a high purpose will prove a real national asset in that it must make the population more amenable to the forces of moral discipline Should this prove to be the case the art of hygiene itself a form of moral discipline will be advanced and some good should flow to the community from the horrors of war

MAINTENANCE OF AN EFFICIENT POPULATION

War involves a serious qualitative as well as quantitative loss to the nation It is not as the storm that cleanses but as the whirlwind that devastates War is less dysgenic than venereal disease and the abuse of alcohol—the two great factors in racial degeneration that lay *both* sexes so gravely under contribution That Britain has proved capable of maintaining her good stock despite great impoverishments of her most virile manhood is abundantly shown in the record of our isles To mention one notable instance the manhood of the country was already seriously drained by the long wars of Edward III when the Black Death ravaged the country with even more terrible consequences, for it claimed a heavy toll of *both* sexes discriminating but little between the weak and the strong Yet the subsequent history of our nation does not indicate that the consequences were of a lasting nature While from the public health standpoint we now enjoy advantages as compared with the population of those earlier days which should favour our regeneration of stock, it must be borne in mind that these advantages are accompanied by certain modern circumstances that are adverse to child life such as a low (and falling) birth rate and a considerable increase in "urbanisation" and artificial feeding

Our losses must tell heavily upon our declining birth rate. A deep shadow will fall upon the life paths of the many who have lost an only son when there might have been others They have learnt too late the lesson of the mistake of the small family Will such evident shadows do something to impress the lesson upon others that the late marriage (so often childless) and the limitation of offspring to one or two, discount both the happiness of the home and our national well being? Will they have an effect in leading young men and women to think more deeply and to look further ahead in these matters?

An efficient population is an essential factor in the strength of a community which has to face competition be it in war or in peace, and so the nation has the great duty to perform of building up again as quickly as possible its human capital This duty is dictated not only from national and patriotic motives not only from considerations of social well being and happiness but also by the natural desire of a Christian country to do what is possible to ensure that human offspring shall grow up into healthy and happy citizens France has long seen her peril in her low birth-rate, and it was that country which took the initiative in special efforts for conserving infant life This need has been so much taken to heart during the war that the result is an event which is *unique* in history—the rate of infant mortality has actually fallen while France has been fighting an enemy within her gates And so with us, the physical welfare of our child life at the present time must be regarded as of even greater importance than formerly, and it is to the credit of all concerned that we have during the past two years made a great advance in the permanent provisions for the conservation of child life in this country Prominent amongst these is the organised effort to cope with the national losses from measles Everyone is agreed that the ignorance which sacrificed so many children before the war has got to be replaced by knowledge if this great national loss is going to be stemmed But let us not imagine for one moment that this is easy nor that our partial child welfare schemes will suffice The *home circumstances* of the poorer section of the community are responsible for a reduction both of our birth rate and of those births which attain to efficient and worthy citizenship From this and other standpoints it is impossible to exaggerate the importance of better housing Again maternal welfare during the last few months of pregnancy is an essential part of infant welfare, and the greatest enemy to intra- and extra uterine infant life is the poverty that cuts short the necessary supply of food clothing and fuel during the critical period of the expectant and nursing mother Now despite all that can be done by public charitable agencies there is a considerable residuum of necessitous mothers and infants whose poverty often defies and defeats our objects It should be the local concern *everywhere* to see that this matter also is seriously attended to A fund to assist the local authority in a properly safeguarded scheme to this end should be subscribed to by rich and poor alike as the expression of gratitude for a victorious peace and to the men who in every locality have laid down their lives to secure it, and our women who have done so much to provide comforts for our soldiers will not fail to maintain such good work for the needs of mothers and infants if a suitable appeal is made I cannot conceive of any memorial of greater national value nor one more appropriate to the soldier father and soldier son seeing that it aims at a sympathetic provision for the well being of necessitous mothers and offspring

ANTITYPHOID INOCULATION

During the war the principle of adjusting man to his environment when it is difficult to adjust the environment to man has been applied in the protective inoculation against "the great enemy of armies"—typhoid fever The fact that the rate of typhoid mortality in London is considerably below that for England and Wales generally proves that a large concentration of population may enjoy great freedom from this disease under the protection of good sanitary circumstances But it is inevitable that sanitary precautions

[1] A note on the part of this address dealing with Army Sanitation was published in THE LANCET of Nov 25 th p 922.

must be imperfect under *active service conditions*, despite the excellent work of sanitation which the Army achieves in most difficult circumstances Indeed, there may be times when sanitary provisions are almost lacking This was the case during the rapid retirement from Mons when even water carts were often destroyed or abandoned, and during the fighting in the trenches at the Aisne there was little time or opportunity for sanitation Moreover, typhoid fever is endemic each autumn in some areas which have been occupied by our troops and where the sanitation of billeted villages has been indifferent In the above circumstances the consequences would have been disastrous if there had been neglect in providing the protection afforded by a considerable measure of antityphoid inoculations

It will be recalled that the United States troops had a terrible experience of this disease in the Spanish American War of 1898 In six months among 107,973 officers and men 20 738—practically one fifth of the entire force—had typhoid fever In South Africa there were 57 684 cases of this disease, of which over 8000 died Now what about the great war and the British Armies on the Western Front? There have only been scattered cases of typhoid fever and a very occasional small group of cases in different units The triumph in disease prevention which this represents is further impressed by the fact that (calculating from the available data up to the end of 1915) the deaths among our troops *under active service conditions* furnish a death rate from typhoid fever which is actually slightly below that of the male civil population of similar ages and for the same period in England and Wales "The great enemy of armies" has been reduced to impotence by vaccination

The experience in the present war brings out the fact that the non inoculated British soldier is very much more liable to catch typhoid fever than is the inoculated soldier, and that when both catch the disease the non inoculated soldier is between three and four times more liable to die from it I learn that a like comparison in respect to the French Army is similarly favourable to inoculation, and in the German Army it is authoritatively stated that the number of cases of typhoid fell at once when inoculation was carried out. By the end of 1915 all the armies of the Central Powers were inoculated against typhoid fever

Thus antityphoid inoculation has proved its value It saves human life, the severity of attack is generally much lessened, it confers a greater freedom from relapses and complications, convalescence is more rapid, probably the proportion of "carrier cases" is reduced, and even after infection has been contracted, if inoculation is performed early, it reduces the virulence of the attack Does not this successful application of a scientific measure for protecting soldiers from typhoid fever suggest the lesson of its wider application to those civilians who dwell in endemic areas or are judged to have run serious risk of infection?

COMPLETENESS OF PREVENTIVE MEASURES

I wish that the time permitted me to detail the unprecedentedly complete measures taken by the army in the field and on the lines of communication—unprecedented even in civil practice in times of peace The preventive inoculations performed, the work of diagnosis by Widal and blood-culture tests, the search work for carriers even undertaken in motor bacteriological laboratories which can be taken nearer the front than the hospital or municipal laboratories are situated, the special hospitals established for the reception of typhoid cases, the system of inter divisional notification and the protective inoculation of even civil contacts in areas occupied by our troops &c I can only say that it is all very impressive in its unprecedented completeness and efficiency, even to one who has spent his life in the civil work of preventive medicine, and I would add deliberately that if all these army measures were applied to the civil population the small and rapidly diminishing part which typhoid fever contributes to our general death rate would in the near future be reduced almost to vanishing point

To allow convalescents from typhoid fever paratyphoid fevers A and B and dysentery to mingle with the general population without taking suitable precautions would be dangerous, for in each disease a small proportion of the sufferers who have apparently quite recovered may still harbour and occasionally discharge the infective organism They may be 'carriers' of infection, though no longer sufferers from it, and the military authorities, realising this danger, have taken measures of a precautionary nature that must be regarded as liberal

It is not easy to assess the effect of such carriers in the dissemination of disease for the "missed cases" may cloak their influence, but there are considerations and facts which call for a moderate estimate Generally speaking, the germs of carriers are leading a kind of saprophytic existence, and therefore are not so infective as those associated with the acute disease Moreover, it does not seem likely that the chronic "carrier" can be responsible for much of "the unexplained residue" of typhoid infection in civil communities, seeing that careful inquiries rarely furnish evidence of secondary cases, after an interval, in the families of previous sufferers Such limited samplings as have been made of general populations abroad to determine what percentages are carriers have yielded results which must greatly exaggerate the facts in this country, where on a very liberal estimate they could hardly exceed 50 per 1,000 000 of population. But we must adopt the cautious view that carrier infection is always a real danger to guard against, and there have been many recorded instances where carriers engaged in the preparation of food for others have, in this indirect way transmitted the infection of typhoid fever What is *most* desirable is that all convalescents from typhoid and dysentery should be specially instructed and trained to observe a high standard of personal hygiene before their discharge from hospital, for their dissemination of infection depends mainly on defective personal hygiene

THE DRINK PROBLEM

Foremost among the sociological questions which the war has forced upon public opinion is the drink problem Generally speaking, great restrictions have been placed upon the sale of intoxicants since the war began with the result of a considerable reduction in drunkenness and crime and our public-houses have become much better places of real refreshment The available returns show that since the Central Control Board restricted the facilities for the consumption of alcohol the convictions for drunkenness in England have fallen between 40 and 50 per cent If, with the facts before them Great Britain, Russia, and France relax after the war the restrictions upon the sale of alcohol vodka and absinthe, then, indeed, must we despair of social progress All political parties must combine in an effort to perpetuate the good effected no particular party should be penalised by loss of votes by such action All parties after war broke out combined against the common enemy Germany, is it too much to hope that when peace comes all parties will combine against this even greater adversary?

There is a story told of a physician who had evolved a sovereign remedy which he dispensed himself in the form of a pill On one occasion he was surprised (and maybe gratified) at the extraordinary demand for these pills by one household On going into the matter, however he discovered that this extraordinary demand was to be attributed to the fact that the pills in question exactly fitted an air gun which was the much prized possession of a youthful scion of the family Sir wise physicians have offered sovereign remedies for several social evils during the war, are these destined to meet no better fate than expended ammunition from the pop guns of party politics?

Speaking as one whose public duties as a medical officer of health have, for 25 years brought him in close touch with all classes of the community, I affirm with a conviction that is absolute, that there is no one factor of social evil which approaches to the abuse of alcohol in its direct effects upon human health energy and happiness The war has impressed the lesson that much of the evil lies easily within our own control, and that this great source of national weakness in our empire may now be stemmed for all time After the war our people will surely realise a better sense of values in living and this will doubtless make them even more amenable than formerly to control for their well being It has been argued by the superficial economist that the State needs the revenue which it derives from alcohol, but it is a fact that every nation is a great loser by its unrestricted sale. Russia wanting national vigour and money had the wit to see that both were to be obtained by the prohibition of vodka, and I am informed that the result has been that industrial efficiency has increased over 20 per cent., and the

saving power of the people has grown from shillings to pounds.

VENEREAL DISEASE.

Alcoholic abuse and venereal disease are the two great twin evils responsible for social inefficiency and degeneracy. What lesson has the war impressed upon us with reference to the latter? The Royal Commissioners deliberately issued their Report during the progress of the great war, and the Government at once demanded a national effort to cope with this evil, yet it is probable that the anti-venereal campaign, long since overdue, would have been still further postponed had not the circumstances of the war widely impressed the lesson of its need. The subject is admittedly a difficult one and our lack of courage to grapple with the problem in the past has not made it easier, but there can be no doubt whatever that the organisation of scientific measures against venereal disease will quickly lead to a great reduction in the loss and misery it entails. To quote the Royal Commission: "Now and in the years to come the question of public health must be a matter of paramount national importance, and no short-sighted parsimony should be permitted to stand in the way of all means that science can suggest and organisation can supply for guarding the present and future generations upon which the restoration of national prosperity must depend." The particular measures which meet with official approval, in the meantime, are: 1. The provision of facilities for modern methods of diagnosis and treatment free to both sexes under conditions to which no stigma will attach and professional secrecy will be maintained. I believe that if the scheme ended here the results would be meagre, but this provision is to be combined with efforts which strike at the root of the evil—namely: 2. An educational campaign to inculcate a higher moral sense among the people, to spread the knowledge of the prevalence and ravages of these diseases and to impress the necessity for the most prompt and skilled medical treatment. Indeed, education is an essential weapon in any modern campaign of public health. Every case brought under proper treatment is a focus of infection neutralised. Is it too much to expect that those soldiers who have shown signs of such disease during the war shall be suitably examined before discharge, and if found to be suffering from venereal disease *in a contagious form* shall be detained until they are no longer a possible source of danger?

The war has furnished many impressive instances of the value of applied science in warfare. Will this circumstance lead to a wider recognition of its claims in times of peace, not only to industry but also to public health? For instance, the prompt and most efficient treatment of venereal disease is a preventive measure of prime importance; we have learnt much in recent years as to the most scientific means of such treatment, when these are made available to the population at large; are the people still to be allowed to be tinkered by unqualified persons? Is this situation also going to be handled with courage?

INDUSTRIAL FATIGUE.

I would remind you of another sphere in which applied science offers a rich reward. In the sphere of industry hygiene has already achieved some of its most notable triumphs in the reduction of preventable disease, but war has led to the direction of public attention to a further lesson which the hygienist has often sought to impress. I refer to the findings of the committee appointed to consider and advise on questions of industrial fatigue as affecting the personal health and physical efficiency of workers in munition factories and workshops. The accumulative effects of industrial fatigue not only damage the general health (this is reflected in sickness returns) they are also responsible for lost time and an unsatisfactory quality and quantity of work performed. As the more scientific organisation of industrial energy in conformity with the physiological laws of life is capable of raising the standard both of the workers' health and of his output, the importance of scientifically adapting the hours of labour to different kinds and circumstances of work cannot be denied. Now that there are plenty of actual working experiments and observations to support these conclusions of science, will employers of labour generally assimilate the fact (and profit by it) that the complicated human mechanism has its optimum conditions of work and that it is foolish and wasteful to ignore them?

CATARRHAL AFFECTIONS AND CEREBRO-SPINAL FEVER.

Another lesson of the war is that we have succeeded so little in impressing the importance of fresh air, by night as well as day, upon the masses that an open window at night is generally regarded with aversion by most army recruits, no matter whether they be town or country born, and unless after entering the army they are suitably trained they will allow the air of the huts at night to become, to put it mildly, enervating. The result is the nemesis of an excessive rate of sickness from catarrhal conditions of throat and lungs, from which the better trained occupants of well-ventilated huts enjoy a marked comparative freedom, and the spread of infectious disease, including catarrh, influenza, lobar pneumonia &c., is favoured.

The present allowance of 40 sq. ft. of floor space per man is ample, provided a sufficient number of windows (the only really effective means of ventilation in fully occupied huts) are kept open. The Army Council's action in December, 1915 to secure that two diagonally opposite end windows, at least, should be kept open at night, doubtless effected much good, for did not the provision of better ventilated barracks and ships of war lead to a great improvement in the health of the two services many years ago—an improvement characterised by a great reduction of lung complaints, including consumption? The inability to solve the problem of a boot which at a moderate cost and with a fair application of dubbin will keep out the wet during a reasonable period of wear is also largely responsible (especially where the roads and paths are bad) for the high prevalence of catarrhal conditions so often to be noted during the cold and wet months. Everyone will agree that circumstances leading to better air conditions at night and drier feet by day must greatly reduce the prevalence of invaliding. These catarrhal conditions unfit men for their training, lower resistance to several forms of disease, and (as I believe) have been intimately associated with the high incidence of spotted fever among our troops. One cannot but be struck by the general coincidence of the prevalence of this cerebro-spinal fever and a high sick-rate from catarrhal affections; this may be due to a common predisposing cause, but it is probable that catarrhal conditions predispose to spotted fever, possibly exalt its virulence, and also favour its spread, and that they are sometimes abortive cases of the disease. Furthermore, histories of outbreaks of spotted fever in civil communities show that they are usually associated with overcrowding and the attendant lack of cleanliness and ventilation, and when spotted fever occurs we have learnt the value of at once allowing more cubic space, both to sufferers and contacts. And so it would appear that whenever catarrhal conditions are unduly prevalent amongst our soldiers it would be a wise precaution to let this fact serve as a signal for increased ventilation, and to treat it as raising the possibility of the presence of more serious disease. The value of better ventilation is partly due to the cooler air thereby secured, for meningococci die so rapidly in cool air that the chance of the spread of spotted fever then becomes greatly reduced.

Let me add that this war has revealed in us a great capacity for national organisation. If such coördination is possible for *destructive* purposes it is possible for *constructive* purposes, and if after the war the nation realises its prime duty (*Salus populi—Suprema lex*) this national capacity will find expression in a bold policy of public health, involving the coördination of all our available resources. The need for this, and the practicability of this, is in my judgment, the greatest lesson that the war has taught us.

BELGIAN DOCTORS AND PHARMACISTS' RELIEF FUND.—The following additional subscriptions to the Fund have been received:—

Doctors in the Belgian Congo (per M. Boulanger)—Dr. Marsez 200 fr.; Dr. [illegible] 500 fr.; Dr. Hesing 500 fr.; Dr. Dubois 50 fr.; Dr. [illegible] 100 fr.; Dr. Delbille 500 fr.; M. Passaniti (pharmacien) 100 fr.; M. Boulanger (pharmacien) 100 fr.—total 2,6[illegible] francs = £[illegible].

Subscriptions to the Fund should be sent to the treasurer of the Fund, Dr. H. C. Drew, [illegible] at 14, Buckingham Gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, [illegible]. Applications for assistance should be sent to the Secretary, [illegible] Apothecaries, Apothecaries' Hall,

A Presidential Address

ON

LEGENDS AND LORE OF THE GENESIS OF THE HEALING ART

Delivered before the Section of the History of Medicine of the Royal Society of Medicine,

BY RAYMOND CRAWFURD, M A, M D OXON, F R C P LOND,

PHYSICIAN TO KING S COLLEGE HOSPITAL AND KING GEORGE MILITARY HOSPITAL LONDON FELLOW OF KING S COLLEGE LONDON

MR PRESIDENT AND GENTLEMEN,—We are apt to regard the history of medicine as a development of only modern growth, yet, if we look carefully into the oldest extant literature, we may see that even then the mind of man was occupied in speculation as to the origin of the art of medicine and in attempts to explain its progress to the stage at which he found it Thus in the Rij Veda we find the prevalent belief in the divine revelation of the art tempered by the assertion that in the selection of foodstuffs and of medicinal simples animals were the preceptors of mankind If we then pass on a thousand years to what we may call the threshold of scientific medicine, we shall find a Hippocratic treatise devoted to establishing the position of medicine as a natural corollary of dietetics So early may we discern a strain of rational empiricism leavening the lump of theurgy and superstition that bid fair to occupy the whole arena of early medicine

We see, then, that ancient literature recognised three springs of medical knowledge—a divine source, an animal source, and a human source—and I propose to advert briefly to the first two of these, leaving the last for consideration on some future occasion

BELIEF IN DIVINE SOURCE OF MEDICAL KNOWLEDGE

Hindoo Medical Legend —Hindoo medical legend affords a typical account of the divine exposition of medical knowledge and of its transference to mankind Like the Nahuans of ancient Mexico the Hindoos recognised four successive ages in their chronology In the first age mankind remained virtuous, happy, and free from disease, for had not Brahma, the supreme creative being given him the four immortal Vedas—the Rij Yajur Sama and Atharva—containing all the knowledge required by mankind during the first age It should be remarked in passing that these Vedas, replete as they are with samples of curative as well as of preventive medicine, belie an origin in an age exempt from all disease In the second age man fell away from virtue and disease appeared, to the curtailment of life and the impairment of memory In the third age half of the human race was given over to depravity In the fourth and present age the moral and physical corruption of man grew apace, so that disease flourished exceedingly These four ages approximate closely to the four Biblical epochs of the primordial bliss of Eden, of the fall of Man of the state of the earth before the Flood, and of the age that followed thereafter Such compassion had Brahma for man s suffering in this fourth age that he produced a second class of books called Upavedas or supplementary Vedas, one of which, the Ayur Veda, was intended to teach the right manner of living and the prevention and cure of disease so that man might live happily in this world in preparation for further happiness in a future state

The Ayur-Veda, or Science of Life (*ayur* = period of living, *ved* = to know) is a sacred medical record of high antiquity maintaining the general outline of the yet older Atharva Veda It shows that medicine in ancient India was part and parcel of theology, and that the same priests as controlled religion controlled also the treatment of disease, it was not till the end of the Vedic period that the physician began to shake himself free of priestcraft and to assume an independent individuality Fragments only of the original Ayur-Veda survive preserved in the Shastres or Commentaries on the Vedas It is said to have consisted of 1000 sections, each of 100 stanzas The divine Brahma with truly human insight, realising the impossibility of learning so large a work, provided an abridgment in eight parts Nowadays such is the quality of mercy, that when a System of Medicine is published in no more than seven volumes it is accompanied by an abridgment in one Divine exponents are the first to handle these divine books of healing in a celestial entourage Brahma, so say Charaka and Susra a first instructed the god Dakhsa, the Prajabati in the Ayur Veda This god compiled a book, the Chikitra Darshana, which he communicated to the two Ashwins or offspring of Surja, the Sun These Heavenly Twins became the medical attendants of the gods, on whom they performed miraculous cures and authors also of important medical works Indra King of Heaven, was so impressed by their wonderful cures that he induced them to instruct him in the Ayur Veda

Various legends exist telling of the transference of medical knowledge from heaven to earth One relates how the Munis or sacred sages grieved at the melancholy spectacle of disease, met in council in the Himalayas and decided to ask the help of Indra to whom in heaven they sent one of their number Indra duly instructed their emissary in the Ayur Veda, and on his return he related to the Rishis or sages, the principles committed to him In the strength of this knowledge the Rishis succeeded in living in happiness and health to extreme old age wrought many cures on men, and wrote valuable works on medicine Foremost in skill was Agnibesa who instructed practitioners on earth, as the Prajabati did in heaven Agnibesa's treatise was amended later by Charaka

The number of different gods associated with healing in Hindoo mythology is due to the readiness with which, in India, one god supplanted another in popular favour

One other Hindoo legend calls for mention, if only because it recognises the association of the serpent with medicine, in view of the prevalence of serpent worship in ancient India it is remarkable that more is not heard of it in Hindoo myth The legend runs[1] that "the Vedas were lost in the deluge, but were recovered by the great serpent Ananta At the churning of the ocean by the gods and demons the water of the ocean was converted into milk, and then into butter, from which precious gifts were derived Among these was Dhanwantari, the physician, or holy sage, the possessor of the water of life drunk by the immortals" Indra instructed Dhanwantari, in heaven, in the Ayur Veda so that he practised medicine with great success among the gods But seeing the many maladies and the misery of mankind he came on earth to cure them As king of Benares his miraculous cures gained such fame that the divine sages resolved to solicit his aid Susruta was chosen to be the one instructed by him To the conservative sentiment of Dhanwantari the Ayur Veda seemed all sufficing but so voluminous that he charged Susruta to abridge and arrange it for easier comprehension Dhanwantari began by expounding surgery, as formerly there were no diseases among the gods, and only wounds required treatment, his exposition is contained in the six books of Susruta which seem to have been committed to writing about 500 A D The Commentaries of Charaka and Susruta supply the groundwork of the more recent systems of Hindoo Medicine, the disciples of Charaka became physicians those of Susruta surgeons

The Vedas present the usual blend of prayer and invocation of magic and spells, familiar in primitive medicine, but through all this flows a thin stream of rational empiricism, touching, on the surgical side, such procedures as the extraction of arrows the dressing of wounds, amputation of legs and their replacement by iron substitutes castration and removal of eyes, and on the medical side the action of numerous herbs and the healing power of water The oldest the Rij Veda mentions no less than 1001 drugs of which 760 were herbs Vedic physicians lived as herbalists in houses surrounded by gardens of medicinal herbs but they were instructed to seek knowledge also from shepherds and huntsmen no doubt in the belief that they in turn will have learnt much from animals It is noteworthy that many of the instruments described by Susruta are constructed after the form of beasts and birds The anatomical knowledge of the Vedas is of the most elementary kind and consists in little more than an enumeration of the chief component parts of the body, while their physiology stagnates in the expansive conception of breath as the source of vital power

[1] T A Wise Hindu System of Medicine.

Greek Legend Asclepius No good purpose would be served by multiplying illustrations of the doctrine of the divine revelation of medicine from the records of Egypt, Assyria, Persia Judæa, and other nations, in essence, they are everywhere alike. Greek legend, however, will repay fuller consideration, for the study of origins serves to throw light on its traditions and symbolism

Among the gods of Greece, Apollo, son of Zeus and Leto, is the *doyen* of healers, while under his guidance Pæon ministered to the medical needs of the gods in Olympus Other gods and goddesses are endowed with some share of the faculty of healing, thus, both at Athens and Epidaurus Athena bore the occasional surname "Health" and Asclepius was said to have received from Athena the blood of the Gorgon, that from the veins on the right side he used for the healing of men and the restoration of life, that from the veins on the left for their destruction Asclepius is the medium by which Greek medicine came down from heaven to earth In the earlier legend he stands out as a medical superman, and only later does he assume complete divinity He was the son of Apollo and Coronis, who was slain by Artemis for infidelity to Apollo As her body was about to be committed to the funeral pyre, Apollo snatched away the child Asclepius (whether by artificial abortion or by Cæsarean section we are not told), and gave him to Chiron, the Centaur, to instruct in the cure of diseases One legend has it that Chiron acquired his knowledge from Apollo and Artemis, another from his own observation and experience, gained while hunting on Mount Pelion. Hunters, as we have seen in Hindoo myth, were believed to enjoy special facilities for acquiring such knowledge, certainly acquaintance with the favourite foods of animals must have facilitated approach, and the baiting of traps and pitfalls Homer[2] tells us that it was Chiron who instructed Achilles in the cleansing and healing of wounds and Achilles transmitted his teaching to his friend Patroclus Pindar[3] attributes the use of charms as well to Chiron So great was the skill of Asclepius, that we find Castor and Pollux, the Greek Heavenly Twins insisting on his accompanying the expedition of the Argonauts Ultimately he acquired the power of restoring the dead to life, but this achievement proved his undoing, for Pluto, in alarm for his kingdom complained to Zeus who slew him with a thunderbolt and cast him down to Hades He left behind him two sons Podalirius and Machaon, and at least four daughters, Hygieia, Panacea Egreа who married a serpent and was changed into a willow and Jaso, from which of these Hippocrates, who was reputed to be a descendant of Asclepius was derived we are not told The exploits of the warrior surgeons Podalirius and Machaon are recounted by Homer, and to his record we need only add that to Podalirius was attributed the discovery of the art of bleeding On his return from Troy he was driven by a storm to the shores of Caria, where a shepherd, learning that he was a physician took him to the king whose daughter was sick. He is said to have cured her by bleeding her from both arms while for his fee he received his patient in marriage, along with a rich grant of land

Asclepius was represented in Greek art with a serpent twined round a staff, a dog and a cock not infrequently figure among his emblems, on a coin of Epidaurus a dog lies beneath the throne on which he is seated The cock is his habitual offering of sacrifice and there are the inevitable legends to explain both serpent and dog Asclepius it is said was shut up in the house of one Glaucus who had sought his aid, while he was deep in thought there came a serpent carrying a herb in its mouth and twined itself round his staff Asclepius killed the serpent and used the herb to restore the dead to life The presence of dogs in the sanctuary of Asclepius was explained by a legend that, when an infant he was suckled by a bitch According to an inscription found in the temple of Asclepius at Peiræus the dogs were fed on the sacrificial cakes If we may credit Sextus Empiricus[4] the flesh of these sacred dogs was given to the patients to eat as medicine As we shall see presently the dog was credited with imparting to man knowledge both of herbs and of the healing of wounds, may be then its flesh was at one time even sacramentally as embodying the god of healing There was another legend that Asclepius had been suckled in infancy by a goat and Pausanias blends the two legends into a story of his being suckled by a goat and guarded by a dog According to

[2] Iliad XI 827 [3] Pythian III [4] Ed Bekker p 174

Ælian,[5] dogs, goats serpents, oxen, and pigs have the power of foreseeing an impending epidemic, it is perhaps worthy of note that three of these animals figure in the legends and symbolism of Asclepius Inscriptions found in the temples of Asclepius record the healing of blindness by dogs licking the eyes and the cure by licking, of a tumour on the neck of a boy Other gods of healing, for instance, the Sumerian Gula and the Babylonian Marduk are represented accompanied by a dog

The Serpent in relation to Healing—The association of Asclepius with the serpent is of very great interest and importance The association is not peculiar to him, for his Phœnician counterpart, Eshmun, likewise has a serpent as his symbol, so has his own daughter, Hygieia, who is represented feeding a serpent from a saucer In Madagascar too Ramahavaly, the god of healing, was held to be the patron of serpents and to employ them in his service, for good or for harm When his image was carried in public, each of his attendants held a writhing serpent in his hand, to inspire awe in the beholders The Naga (serpent) tribes of Cashmir acquired their medical skill from the serpent and the ancient Celts by drinking serpent broth In India it is common to make clay or brazen images of the serpent, and offer sacrifice to them on behalf of the sick, just as Moses in time of pestilence set up a brazen serpent that all might behold and be cured The inhabitants of Southern Arabia regarded medicinal waters as haunted by serpent jinni and in a certain African lagoon dwelt a serpent that relieved madness, and in an Algerian well one that cured sore eyes There was a prevalent belief in the Middle Ages that the household snake, if not propitiated would prevent conception

In the legends of Asclepius we have already encountered the belief that the serpent has knowledge of herbs that can restore the dead to life, and we meet it again in the story of Polyidus The same belief is current in German, Italian, and Lithuanian folk-lore A Syrian story[6] tells how the king of the serpents restored three slain men to life by washing them with the waters of life, and Russian folk lore represents the serpent as possessing a magic water that heals all wounds, restores sight to the blind, and vigour to the cripple. One Russian tale describes a wonderful garden, in which were two streams of healing and life giving water, and round it was coiled a serpent. In Eden the serpent knew well the properties of the Tree of Life.

Sacred snakes were kept in the temple of Asclepius, and fed with honey cakes; at Epidaurus certain native snakes were sacred to Asclepius The temple snakes were credited with effecting cures by licking patients with their tongues Similarly the blind emperor Theodosius received his sight by a serpent laying a precious stone on his eyes, and Siegfried became invulnerable by bathing in the blood of the dragon

Besides the tales of miraculous cures by serpents, there is a crop of legends that seek to explain how man acquired the healing knowledge of the serpent The serpent, by touching his ears or his lips, makes him to understand the voices of birds, who have the gift of foretelling the future, and the language of plants, so that they disclose to the hearer their secret medicinal properties That serpents should know the language of birds was not unnatural for they were believed to be generated from the blood of birds, this idea may be referable to the fact that serpents eat the eggs of birds Yet another widespread belief held that the medical skill of the serpent could be acquired by eating its flesh, this is merely an illustration of the general belief that the properties of animal, man, or god may be acquired by eating the possessor

Cicero says that the ancients explained the connexion of the serpent with Asclepius by the fact that, like the healing art the serpent yearly sloughed its old skin and put on a new; but, in all probability Asclepius was originally himself a serpent that subsequently became transformed into an anthropomorphic god, for whom conservative religious sentiment preserved the symbol of the serpent This same conservatism is seen in the custom of sending a sacred snake from an existing sanctuary whenever a fresh one was established It is not clear why the serpent is represented twined round a staff, just as it was coiled round an apple tree in the garden of the Hesperides Can this, too be a symbol?—a symbol of some tree spirit standing yet further back than the serpent in the pedigree of Asclepius?

[5] Nat Anim VI 15 [6] Frazer Pausania VI x 3

Zoologists tell us that the serpent is by no means an intelligent animal, despite the fact that it became the legendary embodiment of knowledge, and of medical knowledge in particular The serpent of Genesis was more subtile than any beast of the field. The strange sinuous form, the mysterious gliding movement, the annual sloughing of the skin with its annual renewal, the weird fascination of its victims—all these must have served to endow the serpent with the homage of wonder that attaches, often so inaptly, to the unknown, and perhaps the deadly poison of the almost imperceptible bite may have seemed to link it appropriately to the science of herbs, that bring life or death to man

BELIEF IN ANIMAL SOURCE OF MEDICAL KNOWLEDGE

From this brief consideration of the serpent, to the ancients so much more of a god than an animal, we may pass to the kindred belief that man owed his knowledge of medicine to observation and imitation of the practices of animals

The Dog —From the evidence of geology we know that the dog was the first animal to be domesticated, and man must have soon observed its habit of licking its wounds, as cats and horses also do He must have noted again and again how much more readily his dog s sores healed than his own, and not unreasonably attributed this to the licking It is no matter for surprise, then that we should find this method of healing wounds employed in the temples of Asclepius by the tongues of dogs and of serpents In quite recent years licking of sores by the tongue of a dog was held in repute both in Scotland and France [7] In the absence of any knowledge of the essential conditions that govern the healing of wounds, it was a natural conclusion that the licking was of therapeutic intent, and akin to the cleansing that was the central feature of the primitive treatment of wounds There is no certain evidence that licked wounds of dogs heal more readily than those which cannot be reached by licking, and the contrast with the slower healing in man would seem to be due to the wide difference in immunity to sepsis between man and dog, for the dog is highly refractory even to subcutaneous injection of pyogenic organisms There seems no reason to suppose that by licking their wounds dogs imbibe toxins that produce specific antibodies which assist them in the struggle against invading organisms, for they appear to have little or no need of such assistance When one reflects how a child sucks an injured finger, how he puts his hand to a hurt leg or a bruised head, how hard each one of us finds it to keep his fingers from a scab, it seems not improbable that underlying all these tendencies is a common instinct to touch the injured part with the tongue or hand to determine the injury and, if possible, to remove the cause If, in the case of the tongue this should promote healing by the removal of dust and particles of dirt, this contingent benefit is merely incidental and does not indicate a definite therapeutic purpose

There is a very ancient tradition that dogs, when they are ill, eat grass or standing corn to relieve the stomach by vomiting and purgation, and Ælian [8] says it was from this that the Egyptians gained their knowledge of purgatives and emetics Aristotle says that wolves do the same, and he might also have included cats Ælian adds that dogs relieve themselves in this way of worms and of the excess of bile which causes rabies The grasses that dogs eat have been identified as *Triticum caninum* (dog wheat), *Agrostis canina* (brown bent-grass), and *Cynosurus cristatus* (dog grass) From observation of my own and other dogs I feel sure that dogs do not eat grass, exclusively or even chiefly when they are sick, and certainly not with the purpose of exciting vomiting or purgation They are most prone to eat grass immediately on reaching green fields after a spell of town life, as a rule they cease to eat it or do so very rarely, after a few days in the country I have never seen the grass produce actual vomiting, it is usually hawked back, churned up with saliva and has probably seldom passed far down the gullet When not regurgitated I have never known it to cause diarrhœa, any looseness of the bowels is referable to the increased exercise that the dog takes in the country as compared with a town The number of human beings who chew grass bents is quite as large as that of dogs that chew grass, and I have an impression that the habit is far more common among town dwellers visiting the country than among country folk The human being certainly chews it because he likes the taste, and avoids swallowing it for fear of exciting vomiting I strongly suspect that there is some subtle aroma of the grass that tickles the dog s palate, and seeing how much misery a dog suffers in the prospect and act of vomiting I am loth to believe that it entertains any therapeutic purpose

VENESECTION

The origin of venesection was another matter that excited speculation in the ancient world Pliny [9] says that the hippopotamus invented blood letting and taught the art to man This animal, he says, when surfeited with blood, seeks out the sharp point of a newly cut reed, and pressing against it, opens one of the veins in the thigh, to its immediate relief, then it plasters the wound over with mud Buffon, quoting P Labat, repeats the story, substituting a sharp-pointed rock for the reed, and with the picturesque addition that the animal agitates its body to promote the flow, and when it thinks it has lost a sufficient quantity rolls in the mud so as to close the wound With respect to the various observations involved in these statements, it is the case that the hippopotamus is very prone to exhibit wounds, in spite of the fact that in most parts the skin is two inches thick. These wounds seem to arise in two ways most commonly as the result of fights, as male hippopotami in the wild state are constantly fighting, regardless of the pairing season, and a wounded animal is often furiously attacked by a comrade; but also as the result of rubbing themselves against any convenient projection a habit that is common among animals in confinement, and even among such domesticated animals as cows, sheep, and pigs Again, it is a habit of both hippopotamus and rhinoceros to roll in the mud of river banks till they are plastered all over, and the mud would certainly adhere more readily to the abraded surface of a wound, giving the semblance of a purposive dressing of mud The Andaman Islanders use mud in similar fashion as a protective covering, as some think to guard them from the attacks of mosquitoes, but this is probably only part of the truth, as mud is used as a dressing in countries where there are no mosquitoes probably for no better reason than that it is always handy In the case of the Andaman Islanders, dwelling as they are almost on the equator, it is more likely used as a protection against the direct rays of the sun It is not without interest, in considering the association of the hippopotamus with venesection, that the hippopotamus is one of the animals that has a coloured sweat carmine in its case

The vampire bat has shared with the hippopotamus the credit of having taught mankind the art of venesection, such was the belief of the natives of Peru at the time of the discovery of that country Peter Martyr [10] describes the rescue from death of a man grievously stricken with pleurisy by the agency of one of these bats, after the human phlebotomist had failed to strike blood Buffon cites several travellers who assert that large vampire bats suck the blood of men and cattle when asleep, they were believed to render the victim insensible to their bite by agitating the air with their wings and throwing him into a deep sleep Doubt was thrown on these observations till Darwin, in his "Voyage of the *Beagle*," described how he actually saw a vampire bat sucking blood from the withers of one of the camp horses These bats attack man less frequently than cattle and usually when asleep and on an exposed foot They have a capricious taste for while one person may sleep in the open air with perfect immunity, another will be bitten almost nightly This trait is common among blood sucking animals, such as fleas and lice, whether it is due to difference in the blood, or to the relative thinness of the skin or to some other cause is obscure Females on the whole seem to be more susceptible to both lice and fleas than males and I can testify that not one of the least blessings conferred on myself by a long period of connubial felicity has been complete immunity to fleas The habitual food of these bats is insects, and blood is a prized but infrequent luxury It is popularly believed in Peru that bites sometimes prove fatal as the blood continues to flow after the bat has relaxed its hold, may be that, like the leech, it secretes an albumose in its saliva. J G Wood says that the wound is sore and

[7] Gregor: Folk lore of the North East of Scotland p 127 D'Tharace: Erreurs Populaires et Propos Vulgaires ii 178

[8] Ælian: Anim Nat. V, 46 VIII 9 Pliny: N H XXV 51 Aristotle: Hist An IX 6

[9] N H VIII, 40 and XXVIII, 31

[10] De Nove Orbe Decade 8 ch vi p 30

inflamed, but never fatal, but he appears to base this conclusion on an estimate of the amount a bat can imbibe, and takes no account of the subsequent loss

Charlevoix,[11] in his "History of Paraguay," refers the discovery of blood letting to the anta, an animal, "who, when he finds himself overstocked with blood, opens one of his veins with the point of a reed" The anta is the South American tapir, which Linnæus described as a sort of terrestrial hippopotamus Lyddeker says that their hides are often thickly plastered with mud, probably as a protection against insects, and he adds that they are often found wounded by the claws of jaguars, which are their worst foe, these circumstances taken together show how this legend may have originated

Yet another ascription of the art of bleeding is to the leech, of which Pliny says[12] "The action of leeches is looked upon as pretty much the same as that of the cupping-glasses used in medicine, their effect being to relieve the body of superfluous blood, and to open the pores of the skin"

He is a bold man that would venture to assign to any individual, man or animal, the honour if such it be, of having introduced venesection into medicine, but we must not forget that it may well have originated out of all connexion with medicine, as a part of primitive ritual, and that its place in medicine may be merely that of an ancient ritual survival There is a well-defined stage in the evolution of sacrifice at which, instead of sacrifice of the man himself, blood only is taken from him, and his life is spared He is brought to the altar and gashed by the priest A modification of this is met in the worship of the Phrygian Attis, where the priest draws blood from his own arm and presents it as an offering to the god, he is both priest and victim In later stages an animal and then an animal's blood is substituted for a man and a man's blood, and later still a plant or the juice of a plant, for red wine is the blood of the plant

Human sacrifice and ritual cannibalism seem to have reached their zenith among the ancient Mexicans The ordinary mode of sacrifice was for the priest to slash open the breast and tear out the heart, then to fling the corpse to the worshippers to feed on in their homes But at many of their religious fasts it was customary to draw blood from ears, eyelids, nose, lips arms, legs, and body by thrusting the thorns of aloes into their veins and by passing sharp sticks through the tongue With such practices prevailing among the priesthood and with medicine in their hands, one may discern a portal by which blood letting may have found its way into medicine

The *rationale* of ritual blood letting lies in the belief that the soul and the life of man reside in his blood. Even Harvey regarded the blood as the seat of the soul, and we find him in his Prælectiones refuting Aristotle who had asserted the primacy of the heart, and laying it down dogmatically that the "soul is the blood" By eating the flesh or drinking the blood of the victim the worshipper eats the body or drinks the blood of the god, for by the act of sacrifice the victim becomes one with the god, the desire for complete union with the god, by commingling with his substance is a dominant feature of early worship The gods themselves are constantly rejuvenated by the blood of sacrifices so that they may perform with unimpaired activity the vitally important functions incumbent on them The Mexicans and Nicaraguans used to make effigies of their gods out of meal kneaded with human blood and devour them sacramentally Blood was also used as a medium of divination the Babylonian physicians drawing important conclusions from the behaviour of the blood drawn in blood letting It is interesting to find modern pathologists adopting hæmatoscopy afresh, as a means of divining morbid conditions of the subject

Whatever the origin of blood letting we find the practice firmly established anterior to the earliest medical literature, though not mentioned by Homer, it was well known to Hippocrates and was an habitual remedy in veterinary medicine in the time of Vergil.[13]

THE CLYSTER.—HIBERNATION —DITTANY AS A VULNERARY

The Egyptians are said to have learnt the use of the clyster from the ibis Pliny[14] says The ibis by means of its hooked beak, laves the body through that orifice, by which it is essential to health that the residue of the food should be discharged." The sacred ibis, though so common in the land of the Pharaohs during its time of greatness, has now disappeared from Egypt, it has a very long curved bill. No doubt the legend was derived from the habit the bird has of collecting with its beak the oil from the preen gland, situated, as in most birds, above the rump, the oil is used for giving a gloss to the feathers and in water birds is very abundant, when preening birds dip their bills into water and shake them probably so as to rid them of any residue of oil These facts would seem to explain the statement of Cabanés,[15] that his friend, Dr Ballion, had seen wader birds suck up water with the beak and carefully transfer it to their anus and then shake their feathers and stand erect as though greatly relieved Poultry, swallows, and other birds do at times remove fæces from their young with their beaks, but only if the fæces are obtruded and retained *in situ*, this, however, is probably merely an instinct of cleanliness It is possible that the story of the ibis may have arisen from the coincidence that the hieroglyph for the ibis is identical with that for a Moon god, in which character Thoth, the divine physician was often represented It deserves also to be mentioned that the use of the clyster for evacuating the bowels was a late development, its earlier use was as a means of introducing drugs and aliment into the body

The hibernating bear inevitably excited the curiosity of the speculative, but far greater interest was displayed in the associated phenomena of hibernation than in the causes that induce the state. Topsel[16] believed that it was the direct result of eating certain herbs that imparted the faculty of sleeping the whole winter without food and without sense of cold. In support of his belief he states that a cow herd, who observed a bear eating a certain root, ate some of it himself, and was immediately seized with such a desire to sleep that he lay down and slept all through the winter, waking again only in the spring Modern research suggests that the state is excited rather by the recurrent failure of the general food supply than by the ingestion of any special foodstuff, and is limited to those species in which the power to maintain temperature at a permanent average height during sleep has been lost or never acquired

Aristotle[17] says that after hibernation bears eat arum, so as to open the bowels, which are empty and collapsed, and that they chew sticks of wood, as though they were cutting teeth, or as Pliny[18] suggests, so as to sharpen their teeth, the latter adds the observation that their eyesight is dimmed, and that to relieve this they invade the nests of bees, so that the stings they receive in their throats may draw away the oppression from their heads It is not easy to obtain reliable evidence of the behaviour of hibernating bears, as they do not hibernate in captivity as in our own Zoological Gardens. We do know, however, that in the wild state the bowel is mechanically obstructed during hibernation by a plug technically known as "the tappen," which is composed almost entirely of pine leaves and the various substances which the bear scratches out of ants nests, this tappen is discharged on the return of activity in spring This, no doubt, is the basis of the tradition that the bear seeks special herbs to excite purgation Ælian[19] holds that the purgation restores the bear's power of taking food but Topsel *conceives* it to have the further purpose of improving their general health, so as to render them highly savage during all the time that they are guarding their young The eating of ants and of honey was believed to be also *designed* for the purpose of opening the bowels. Pliny, however, fancies that ants are eaten to counteract the *effects* of the mandrake, when it has been taken inadvertently This whole sum total of credulity has provided practical medicine with no hypnotic at all, and no laxative more active than honey, even if its use could be referred to this source. In raiding a nest of bees for honey the bear is quite regardless of the numerous stings it receives which seems to have induced Pliny's belief mentioned above, that the stings were solicited for a definite purpose, perhaps some colour was lent to the belief by the knowledge that bears, especially in confinement, are very prone to ophthalmia, and are often

[11] Le tom History of the Origin of Medicine
[12] N H XXXII 42 [13] Georgics III 457 seq [14] N H., VIII., 41

[15] Bulletin General de Thérapeutique 1912.
[16] History of Four-footed Beasts 1658.
[17] Hist Anim VIII 7 and IX 6
N H., VIII 52.
[19] Nat Anim, VI 3

Zoologists tell us that the serpent is by no means an intelligent animal, despite the fact that it became the legendary embodiment of knowledge, and of medical knowledge in particular The serpent of Genesis was more subtile than any beast of the field The strange sinuous form, the mysterious gliding movement, the annual sloughing of the skin with its annual renewal, the weird fascination of its victims—all these must have served to endow the serpent with the homage of wonder that attaches often so inaptly, to the unknown, and perhaps the deadly poison of the almost imperceptible bite may have seemed to link it appropriately to the science of herbs, that bring life or death to man

BELIEF IN ANIMAL SOURCE OF MEDICAL KNOWLEDGE

From this brief consideration of the serpent, to the ancients so much more of a god than an animal, we may pass to the kindred belief that man owed his knowledge of medicine to observation and imitation of the practices of animals

The Dog —From the evidence of geology we know that the dog was the first animal to be domesticated, and man must have soon observed its habit of licking its wounds, as cats and horses also do He must have noted again and again how much more readily his dog s sores healed than his own, and not unreasonably attributed this to the licking It is no matter for surprise, then that we should find this method of healing wounds employed in the temples of Asclepius by the tongues of dogs and of serpents In quite recent years licking of sores by the tongue of a dog was held in repute both in Scotland and France [7] In the absence of any knowledge of the essential conditions that govern the healing of wounds, it was a natural conclusion that the licking was of therapeutic intent, and akin to the cleansing that was the central feature of the primitive treatment of wounds There is no certain evidence that licked wounds of dogs heal more readily than those which cannot be reached by licking, and the contrast with the slower healing in man would seem to be due to the wide difference in immunity to sepsis between man and dog, for the dog is highly refractory even to subcutaneous injection of pyogenic organisms There seems no reason to suppose that by licking their wounds dogs imbibe toxins that produce specific antibodies which assist them in the struggle against invading organisms, for they appear to have little or no need of such assistance When one reflects how a child sucks an injured finger, how he puts his hand to a hurt leg or a bruised head, how hard each one of us finds it to keep his fingers from a scab, it seems not improbable that underlying all these tendencies is a common instinct to touch the injured part with the tongue or hand to determine the injury and, if possible, to remove the cause If, in the case of the tongue this should promote healing by the removal of dust and particles of dirt, this contingent benefit is merely incidental and does not indicate a definite therapeutic purpose.

There is a very ancient tradition that dogs, when they are ill, eat grass or standing corn to relieve the stomach by vomiting and purgation, and Ælian [8] says it was from this that the Egyptians gained their knowledge of purgatives and emetics Aristotle says that wolves do the same, and he might also have included cats Ælian adds that dogs relieve themselves in this way of worms and of the excess of bile which causes rabies The grasses that dogs eat have been identified as *Triticum caninum* (dog wheat), *Agrostis canina* (brown bent-grass), and *Cynosurus cristatus* (dog grass) From observation of my own and other dogs I feel sure that dogs do not eat grass, exclusively or even chiefly when they are sick, and certainly not with the purpose of exciting vomiting or purgation They are most prone to eat grass immediately on reaching green fields after a spell of town life, as a rule they cease to eat it, or do so very rarely, after a few days in the country I have never seen the grass produce actual vomiting, it is usually hawked back, churned up with saliva and has probably seldom passed far down the gullet When not regurgitated I have never known it to cause diarrhœa, any looseness of the bowels is referable to the increased exercise that the dog takes in the country as compared with a town The number of human beings who chew grass bents is quite as large as that of dogs that chew grass, and I have an impression that the habit is far more common among town dwellers visiting the country than among country folk The human being certainly chews it because he likes the taste and avoids swallowing it for fear of exciting vomiting I strongly suspect that there is some subtle aroma of the grass that tickles the dog's palate, and seeing how much misery a dog suffers in the prospect and act of vomiting I am loth to believe that it entertains any therapeutic purpose

VENESECTION

The origin of venesection was another matter that excited speculation in the ancient world Pliny [9] says that the hippopotamus invented blood letting and taught the art to man. This animal, he says, when surfeited with blood, seeks out the sharp point of a newly cut reed, and pressing against it, opens one of the veins in the thigh, to its immediate relief, then it plasters the wound over with mud Buffon, quoting P Labat, repeats the story, substituting a sharp-pointed rock for the reed, and with the picturesque addition that the animal agitates its body to promote the flow, and when it thinks it has lost a sufficient quantity rolls in the mud so as to close the wound With respect to the various observations involved in these statements, it is the case that the hippopotamus is very prone to exhibit wounds, in spite of the fact that in most parts the skin is two inches thick These wounds seem to arise in two ways most commonly as the result of fights, as male hippopotami in the wild state are constantly fighting, regardless of the pairing season and a wounded animal is often furiously attacked by a comrade, but also as the result of rubbing themselves against any convenient projection a habit that is common among animals in confinement, and even among such domesticated animals as cows, sheep, and pigs Again, it is a habit of both hippopotamus and rhinoceros to roll in the mud of river banks till they are plastered all over, and the mud would certainly adhere more readily to the abraded surface of a wound, giving the semblance of a purposive dressing of mud The Andaman Islanders use mud in similar fashion as a protective covering, as some think to guard them from the attacks of mosquitoes, but this is probably only part of the truth, as mud is used as a dressing in countries where there are no mosquitoes probably for no better reason than that it is always handy In the case of the Andaman Islanders, dwelling as they are almost on the equator, it is more likely used as a protection against the direct rays of the sun It is not without interest, in considering the association of the hippopotamus with venesection, that the hippopotamus is one of the animals that has a coloured sweat carmine in its case

The vampire bat has shared with the hippopotamus the credit of having taught mankind the art of venesection, such was the belief of the natives of Peru at the time of the discovery of that country Peter Martyr [10] describes the rescue from death of a man grievously stricken with pleurisy by the agency of one of these bats, after the human phlebotomist had failed to strike blood Buffon cites several travellers who assert that large vampire bats suck the blood of men and cattle when asleep, they were believed to render the victim insensible to their bite by agitating the air with their wings and throwing him into a deep sleep Doubt was thrown on these observations till Darwin, in his "Voyage of the *Beagle*" described how he actually saw a vampire bat sucking blood from the withers of one of the camp horses These bats attack man less frequently than cattle and usually when asleep and on an exposed foot They have a capricious taste for while one person may sleep in the open air with perfect immunity, another will be bitten almost nightly This trait is common among blood sucking animals, such as fleas and lice, whether it is due to difference in the blood, or to the relative thinness of the skin or to some other cause is obscure Females on the whole seem to be more susceptible to both lice and fleas than males and I can testify that not one of the least blessings conferred on myself by a long period of connubial felicity has been complete immunity to fleas The habitual food of these bats is insects, and blood is a prized but infrequent luxury It is popularly believed in Peru that bites sometimes prove fatal as the blood continues to flow after the bat has relaxed its hold, may be that, like the leech, it secretes an albumose in its saliva. J G Wood says that the wound is sore and

[7] Gregor: Folk lore of the North East of Scotland p 127 D'Tharace: Erreurs Populaires et Propos Vulgaires ii, 178.
[8] Ælian: Anim Nat. V, 46 VIII 9 Pliny N H XXV 51 Aristotle: Hist An IX 6

[9] N H VIII, 40 and XXVIII 31
[10] De Novo Orbe Decade 8 ch. vi p 30

inflamed, but never fatal, but he appears to base this conclusion on an estimate of the amount a bat can imbibe, and takes no account of the subsequent loss

Charlevoix,[11] in his "History of Paraguay," refers the discovery of blood letting to the anta, an animal "who, when he finds himself overstocked with blood, opens one of his veins with the point of a reed." The anta is the South American tapir, which Linnæus described as a sort of terrestrial hippopotamus Lyddeker says that their hides are often thickly plastered with mud, probably as a protection against insects and he adds that they are often found wounded by the claws of jaguars, which are their worst foe, these circumstances taken together show how this legend may have originated

Yet another ascription of the art of bleeding is to the leech, of which Pliny says[12] "The action of leeches is looked upon as pretty much the same as that of the cupping-glasses used in medicine their effect being to relieve the body of superfluous blood, and to open the pores of the skin"

He is a bold man that would venture to assign to any individual, man or animal, the honour, if such it be of having introduced venesection into medicine, but we must not forget that it may well have originated out of all connexion with medicine, as a part of primitive ritual, and that its place in medicine may be merely that of an ancient ritual survival There is a well-defined stage in the evolution of sacrifice, at which instead of sacrifice of the man himself, blood only is taken from him, and his life is spared He is brought to the altar and gashed by the priest A modification of this is met in the worship of the Phrygian Attis, where the priest draws blood from his own arm and presents it as an offering to the god, he is both priest and victim In later stages an animal and then an animal's blood is substituted for a man and a man's blood, and later still a plant or the juice of a plant, for red wine is the blood of the plant

Human sacrifice and ritual cannibalism seem to have reached their zenith among the ancient Mexicans The ordinary mode of sacrifice was for the priest to slash open the breast and tear out the heart, then to fling the corpse to the worshippers to feed on in their homes But at many of their religious fasts it was customary to draw blood from ears, eyelids, nose, lips arms, legs, and body by thrusting the thorns of aloes into their veins and by passing sharp sticks through the tongue With such practices prevailing among the priesthood, and with medicine in their hands, one may discern a portal by which blood letting may have found its way into medicine

The *rationale* of ritual blood letting lies in the belief that the soul and the life of man reside in his blood Even Harvey regarded the blood as the seat of the soul and we find him in his Prælectiones refuting Aristotle, who had asserted the primacy of the heart, and laying it down dogmatically that the "soul is the blood." By eating the flesh or drinking the blood of the victim the worshipper eats the body or drinks the blood of the god, for by the act of sacrifice the victim becomes one with the god, the desire for complete union with the god, by commingling with his substance is a dominant feature of early worship The gods themselves are constantly rejuvenated by the blood of sacrifices so that they may perform with unimpaired activity the vitally important functions incumbent on them The Mexicans and Nicaraguans used to make effigies of their gods out of meal kneaded with human blood and devour them sacramentally Blood was also used as a medium of divination the Babylonian physicians drawing important conclusions from the behaviour of the blood drawn in blood letting It is interesting to find modern pathologists adopting hæmatoscopy afresh as a means of divining morbid conditions of the subject

Whatever the origin of blood letting, we find the practice firmly established anterior to the earliest medical literature, though not mentioned by Homer, it was well known to Hippocrates, and was an habitual remedy in veterinary medicine in the time of Vergil [13]

THE CLYSTER.—HIBERNATION —DITTANY AS A VULNERARY

The Egyptians are said to have learnt the use of the clyster from the ibis Pliny[14] says "The ibis by means of its hooked beak, laves the body through that orifice, by which it is essential to health that the residue of the food should be discharged." The sacred ibis, though so common in the land of the Pharaohs during its time of greatness, has now disappeared from Egypt, it has a very long curved bill. No doubt the legend was derived from the habit the bird has of collecting with its beak the oil from the preen gland, situated, as in most birds, above the rump, the oil is used for giving a gloss to the feathers and in water birds is very abundant, when preening birds dip their bills into water and shake them probably so as to rid them of any residue of oil These facts would seem to explain the statement of Cabanés,[15] that his friend, Dr Ballion, had seen wader birds suck up water with the beak and carefully transfer it to their anus and then shake their feathers and stand erect as though greatly relieved Poultry, swallows, and other birds do at times remove fæces from their young with their beaks, but only if the fæces are obtruded and retained *in situ*, this, however, is probably merely an instinct of cleanliness It is possible that the story of the ibis may have arisen from the coincidence that the hieroglyph for the ibis is identical with that for a Moon god, in which character Thoth, the divine physician was often represented It deserves also to be mentioned that the use of the clyster for evacuating the bowels was a late development, its earlier use was as a means of introducing drugs and aliment into the body

The hibernating bear inevitably excited the curiosity of the speculative, but far greater interest was displayed in the associated phenomena of hibernation than in the causes that induce the state. Topsel[16] believed that it was the direct result of eating certain herbs that imparted the faculty of sleeping the whole winter without food and without sense of cold In support of his belief he states that a cow herd, who observed a bear eating a certain root, ate some of it himself, and was immediately seized with such a desire to sleep that he lay down and slept all through the winter, waking again only in the spring Modern research suggests that the state is excited rather by the recurrent failure of the general food supply than by the ingestion of any special foodstuff, and is limited to those species in which the power to maintain temperature at a permanent average height during sleep has been lost or never acquired

Aristotle[17] says that after hibernation bears eat arum, so as to open the bowels, which are empty and collapsed, and that they chew sticks of wood, as though they were cutting teeth, or as Pliny[18] suggests, so as to sharpen their teeth, the latter adds the observation that their eyesight is dimmed and that to relieve this they invade the nests of bees, so that the stings they receive in their throats may draw away the oppression from their heads It is not easy to obtain reliable evidence of the behaviour of hibernating bears as they do not hibernate in captivity as in our own Zoological Gardens We do know, however, that in the wild state the bowel is mechanically obstructed during hibernation by a plug technically known as "the tappen," which is composed almost entirely of pine leaves and the various substances which the bear scratches out of ants' nests, this tappen is discharged on the return of activity in spring This, no doubt, is the basis of the tradition that the bear seeks special herbs to excite purgation Ælian[19] holds that the purgation restores the bear s power of taking food but Topsel conceives it to have the further purpose of improving their general health, so as to render them highly savage during all the time that they are guarding their young The eating of ants and of honey was believed to be also designed for the purpose of opening the bowels Pliny, however, fancies that ants are eaten to counteract the effects of the mandrake, when it has been taken inadvertently This whole sum total of credulity has provided practical medicine with no hypnotic at all, and no laxative more active than honey, even if its use could be referred to this source. In raiding a nest of bees for honey the bear is quite regardless of the numerous stings it receives which seems to have induced Pliny s belief, mentioned above that the stings were solicited for a definite purpose, perhaps some colour was lent to the belief by the knowledge that bears, especially in confinement, are very prone to ophthalmia, and are often

[11] Lettsom: History of the Origin of Medicine
[12] N H XXXII 42. [13] Georgics III 457 seq [14] N H., VIII., 41
[15] Bulletin General de Therapeutique 1912.
[16] History of Four footed Beasts 1658.
[17] Hist Anim VIII 7 and IX 6
[18] N H., VIII 52.
[19] Nat Anim., VI, 3

Zoologists tell us that the serpent is by no means an intelligent animal, despite the fact that it became the legendary embodiment of knowledge, and of medical knowledge in particular The serpent of Genesis was more subtile than any beast of the field The strange sinuous form, the mysterious gliding movement, the annual sloughing of the skin with its annual renewal, the weird fascination of its victims—all these must have served to endow the serpent with the homage of wonder that attaches, often so inaptly, to the unknown, and perhaps the deadly poison of the almost imperceptible bite may have seemed to link it appropriately to the science of herbs, that bring life or death to man

BELIEF IN ANIMAL SOURCE OF MEDICAL KNOWLEDGE

From this brief consideration of the serpent, to the ancients so much more of a god than an animal, we may pass to the kindred belief that man owed his knowledge of medicine to observation and imitation of the practices of animals

The Dog —From the evidence of geology we know that the dog was the first animal to be domesticated, and man must have soon observed its habit of licking its wounds, as cats and horses also do He must have noted again and again how much more readily his dog s sores healed than his own, and not unreasonably attributed this to the licking It is no matter for surprise, then that we should find this method of healing wounds employed in the temples of Asclepius by the tongues of dogs and of serpents In quite recent years licking of sores by the tongue of a dog was held in repute both in Scotland and France [7] In the absence of any knowledge of the essential conditions that govern the healing of wounds, it was a natural conclusion that the licking was of therapeutic intent, and akin to the cleansing that was the central feature of the primitive treatment of wounds There is no certain evidence that licked wounds of dogs heal more readily than those which cannot be reached by licking, and the contrast with the slower healing in man would seem to be due to the wide difference in immunity to sepsis between man and dog, for the dog is highly refractory even to subcutaneous injection of pyogenic organisms There seems no reason to suppose that by licking their wounds dogs imbibe toxins that produce specific antibodies which assist them in the struggle against invading organisms, for they appear to have little or no need of such assistance When one reflects how a child sucks an injured finger, how he puts his hand to a hurt leg or a bruised head, how hard each one of us finds it to keep his fingers from a scab, it seems not improbable that underlying all these tendencies is a common instinct to touch the injured part with the tongue or hand to determine the injury and if possible, to remove the cause If, in the case of the tongue this should promote healing by the removal of dust and particles of dirt, this contingent benefit is merely incidental and does not indicate a definite therapeutic purpose.

There is a very ancient tradition that dogs, when they are ill, eat grass or standing corn to relieve the stomach by vomiting and purgation, and Ælian [8] says it was from this that the Egyptians gained their knowledge of purgatives and emetics Aristotle says that wolves do the same, and he might also have included cats Ælian adds that dogs relieve themselves in this way of worms and of the excess of bile which causes rabies The grasses that dogs eat have been identified as *Triticum caninum* (dog wheat), *Agrostis canina* (brown bent-grass), and *Cynosurus cristatus* (dog grass) From observation of my own and other dogs I feel sure that dogs do not eat grass, exclusively or even chiefly, when they are sick, and certainly not with the purpose of exciting vomiting or purgation They are most prone to eat grass immediately on reaching green fields after a spell of town life, as a rule they cease to eat it or do so very rarely, after a few days in the country I have never seen the grass produce actual vomiting, it is usually hawked back, churned up with saliva and has probably seldom passed far down the gullet When not regurgitated I have never known it to cause diarrhœa, any looseness of the bowels is referable to the increased exercise that the dog takes in the country as compared with a town The number of human beings who chew grass bents is quite as large as that of dogs that chew grass, and I have an impression that the habit is far more common among town dwellers visiting the country than among country folk The human being certainly chews it because he likes the taste and avoids swallowing it for fear of exciting vomiting I strongly suspect that there is some subtle aroma of the grass that tickles the dog's palate, and seeing how much misery a dog suffers in the prospect and act of vomiting I am loth to believe that it entertains any therapeutic purpose

VENESECTION

The origin of venesection was another matter that excited speculation in the ancient world Pliny [9] says that the hippopotamus invented blood letting and taught the art to man This animal, he says, when surfeited with blood, seeks out the sharp point of a newly cut reed, and pressing against it, opens one of the veins in the thigh, to its immediate relief, then it plasters the wound over with mud Buffon, quoting P Labat, repeats the story, substituting a sharp-pointed rock for the reed, and with the picturesque addition that the animal agitates its body to promote the flow, and when it thinks it has lost a sufficient quantity rolls in the mud so as to close the wound With respect to the various observations involved in these statements, it is the case that the hippopotamus is very prone to exhibit wounds, in spite of the fact that in most parts the skin is two inches thick. These wounds seem to arise in two ways most commonly as the result of fights, as male hippopotami in the wild state are constantly fighting, regardless of the pairing season, and a wounded animal is often furiously attacked by a comrade; but also as the result of rubbing themselves against any convenient projection a habit that is common among animals in confinement, and even among such domesticated animals as cows, sheep, and pigs Again, it is a habit of both hippopotamus and rhinoceros to roll in the mud of river banks till they are plastered all over, and the mud would certainly adhere more readily to the abraded surface of a wound, giving the semblance of a purposive dressing of mud The Andaman Islanders use mud in similar fashion as a protective covering, as some think to guard them from the attacks of mosquitoes, but this is probably only part of the truth, as mud is used as a dressing in countries where there are no mosquitoes probably for no better reason than that it is always handy In the case of the Andaman Islanders dwelling as they are almost on the equator, it is more likely used as a protection against the direct rays of the sun It is not without interest, in considering the association of the hippopotamus with venesection, that the hippopotamus is one of the animals that has a coloured sweat carmine in its case

The vampire bat has shared with the hippopotamus the credit of having taught mankind the art of venesection, such was the belief of the natives of Peru at the time of the discovery of that country Peter Martyr [10] describes the rescue from death of a man grievously stricken with pleurisy by the agency of one of these bats, after the human phlebotomist had failed to strike blood Buffon cites several travellers who assert that large vampire bats suck the blood of men and cattle when asleep, they were believed to render the victim insensible to their bite by agitating the air with their wings and throwing him into a deep sleep Doubt was thrown on these observations till Darwin, in his "Voyage of the *Beagle*" described how he actually saw a vampire bat sucking blood from the withers of one of the camp horses These bats attack man less frequently than cattle, and usually when asleep and on an exposed foot They have a capricious taste for while one person may sleep in the open air with perfect immunity, another will be bitten almost nightly This trait is common among blood sucking animals, such as fleas and lice, whether it is due to difference in the blood, or to the relative thinness of the skin or to some other cause is obscure Females on the whole seem to be more susceptible to both lice and fleas than males and I can testify that not one of the least blessings conferred on myself by a long period of connubial felicity has been complete immunity to fleas The habitual food of these bats is insects and blood is a prized but infrequent luxury It is popularly believed in Peru that bites sometimes prove fatal, as the blood continues to flow after the bat has relaxed its hold, may be that, like the leech it secretes an albumose in its saliva J G Wood says that the wound is sore and

[7] Gregor Folk lore of the North East of Scotland p 127 D'Tharace Erreurs Populaires et Propos Vulgaires, ii 178

[8] Ælian: Anim Nat. V, 46 VIII 9 Pliny: N H XXV 51 Aristotle: Hist An IX. 6

[9] N H VIII 40 and XXVIII., 31

[10] De Nove Orbe Decade 8 ch vi p 30

inflamed but never fatal, but he appears to base this conclusion on an estimate of the amount a bat can imbibe and takes no account of the subsequent loss

Charlevoix [11] in his "History of Paraguay," refers the discovery of blood-letting to the anta, an animal "who, when he finds himself overstocked with blood, opens one of his veins with the point of a reed" The anta is the South American tapir, which Linnæus described as a sort of terrestrial hippopotamus Lyddeker says that their hides are often thickly plastered with mud, probably as a protection against insects and he adds that they are often found wounded by the claws of jaguars, which are their worst foe, these circumstances taken together show how this legend may have originated

Yet another ascription of the art of bleeding is to the leech of which Pliny says[12] "The action of leeches is looked upon as pretty much the same as that of the cupping-glasses used in medicine their effect being to relieve the body of superfluous blood, and to open the pores of the skin"

He is a bold man that would venture to assign to any individual, man or animal, the honour if such it be, of having introduced venesection into medicine, but we must not forget that it may well have originated out of all connexion with medicine, as a part of primitive ritual and that its place in medicine may be merely that of an ancient ritual survival There is a well defined stage in the evolution of sacrifice at which instead of sacrifice of the man himself, blood only is taken from him, and his life is spared He is brought to the altar and gashed by the priest A modification of this is met in the worship of the Phrygian Attis, where the priest draws blood from his own arm and presents it as an offering to the god, he is both priest and victim In later stages an animal and then an animal's blood is substituted for a man and a man s blood, and later still a plant or the juice of a plant, for red wine is the blood of the plant

Human sacrifice and ritual cannibalism seem to have reached their zenith among the ancient Mexicans. The ordinary mode of sacrifice was for the priest to slash open the breast and tear out the heart then to fling the corpse to the worshippers to feed on in their homes But at many of their religious fasts it was customary to draw blood from ears, eyelids, nose lips arms, legs, and body by thrusting the thorns of aloes into their veins and by passing sharp sticks through the tongue With such practices prevailing among the priesthood, and with medicine in their hands one may discern a portal by which blood letting may have found its way into medicine

The *rationale* of ritual blood letting lies in the belief that the soul and the life of man reside in his blood Even Harvey regarded the blood as the seat of the soul and we find him in his Prælectiones refuting Aristotle who had asserted the primacy of the heart, and laying it down dogmatically that the "soul is the blood" By eating the flesh or drinking the blood of the victim the worshipper eats the body or drinks the blood of the god for by the act of sacrifice the victim becomes one with the god, the desire for complete union with the god, by commingling with his substance is a dominant feature of early worship The gods themselves are constantly rejuvenated by the blood of sacrifices so that they may perform with unimpaired activity the vitally important functions incumbent on them The Mexicans and Nicaraguans used to make effigies of their gods out of meal kneaded with human blood and devour them sacramentally Blood was also used as a medium of divination the Babylonian physicians drawing important conclusions from the behaviour of the blood drawn in blood letting It is interesting to find modern pathologists adopting hæmatoscopy afresh as a means of divining morbid conditions of the subject

Whatever the origin of blood letting, we find the practice firmly established anterior to the earliest medical literature, though not mentioned by Homer, it was well known to Hippocrates and was an habitual remedy in veterinary medicine in the time of Vergil [13]

THE CLYSTER.—HIBERNATION —DITTANY AS A VULNERARY

The Egyptians are said to have learnt the use of the clyster from the ibis Pliny [14] says The ibis by means of its hooked beak, laves the body through that orifice, by which it is essential to health that the residue of the food should be discharged." The sacred ibis, though so common in the land of the Pharaohs during its time of greatness, has now disappeared from Egypt, it has a very long curved bill. No doubt the legend was derived from the habit the bird has of collecting with its beak the oil from the preen gland, situated, as in most birds above the rump, the oil is used for giving a gloss to the feathers and in water birds is very abundant, when preening birds dip their bills into water and shake them, probably so as to rid them of any residue of oil These facts would seem to explain the statement of Cabanés,[15] that his friend, Dr Ballion, had seen wader birds suck up water with the beak and carefully transfer it to their anus and then shake their feathers and stand erect as though greatly relieved Poultry, swallows, and other birds do at times remove fæces from their young with their beaks, but only if the fæces are obtruded and retained *in situ*, this, however, is probably merely an instinct of cleanliness It is possible that the story of the ibis may have arisen from the coincidence that the hieroglyph for the ibis is identical with that for a Moon god, in which character Thoth, the divine physician was often represented It deserves also to be mentioned that the use of the clyster for evacuating the bowels was a late development, its earlier use was as a means of introducing drugs and aliment into the body

The hibernating bear inevitably excited the curiosity of the speculative, but far greater interest was displayed in the associated phenomena of hibernation than in the causes that induce the state. Topsel [6] believed that it was the direct result of eating certain herbs that imparted the faculty of sleeping the whole winter without food and without sense of cold. In support of his belief he states that a cow-herd, who observed a bear eating a certain root, ate some of it himself and was immediately seized with such a desire to sleep that he lay down and slept all through the winter waking again only in the spring Modern research suggests that the state is excited rather by the recurrent failure of the general food supply than by the ingestion of any special foodstuff, and is limited to those species in which the power to maintain temperature at a permanent average height during sleep has been lost or never acquired

Aristotle [16] says that after hibernation bears eat arum, so as to open the bowels which are empty and collapsed, and that they chew sticks of wood, as though they were cutting teeth, or as Pliny [17] suggests, so as to sharpen their teeth, the latter adds the observation that their eyesight is dimmed and that to relieve this they invade the nests of bees, so that the stings they receive in their throats may draw away the oppression from their heads It is not easy to obtain reliable evidence of the behaviour of hibernating bears, as they do not hibernate in captivity as in our own Zoological Gardens We do know, however, that in the wild state the bowel is mechanically obstructed during hibernation by a plug technically known as "the tappen," which is composed almost entirely of pine leaves and the various substances which the bear scratches out of ants nests, this tappen is discharged on the return of activity in spring This, no doubt, is the basis of the tradition that the bear seeks special herbs to excite purgation Ælian [18] holds that the purgation restores the bear s power of taking food, but Topsel conceives it to have the further purpose of improving their general health so as to render them highly savage during all the time that they are guarding their young The eating of ants and of honey was believed to be also designed for the purpose of opening the bowels. Pliny, however, fancies that ants are eaten to counteract the effects of the mandrake, when it has been taken inadvertently This whole sum total of credulity has provided practical medicine with no hypnotic at all, and no laxative more active than honey even if its use could be referred to this source. In raiding a nest of bees for honey the bear is quite regardless of the numerous stings it receives which seems to have induced Pliny's belief mentioned above that the stings were solicited for a definite purpose, perhaps some colour was lent to the belief by the knowledge that bears, especially in confinement are very prone to ophthalmia, and are often

[11] Lettsom History of the Origin of Medicine
[12] N H XXXII 42 [13] Georgics III 457 seq [14] N H., VIII 41
[15] Bulletin General de Therapeutique, 1912.
[16] History of Four-footed Beasts, 1658.
[17] Hist. Anim., VIII 7 and IX 6.
[18] N H., VIII 52 [19] Nat. Anim., VI 3.

totally blinded by it The grizzly bear s habit, when coming out of hibernation, of standing upright against a tree and scoring the bark with its claws calls for passing notice, as affording a clue to the legend of the chewing of sticks This primitive method of manicure is doubtless directed to reducing the redundant growth of the nails to serviceable proportions,

When Æneas[20] was wounded by an arrow, Venus sped to Crete to fetch the herb dittany, wherewith Iapyx should heal his wound Deer and goats well knew its value as a vulnerary, to remove arrows from their wounds It is difficult to conceive a stage of mental development at which man employed herbs in preference to his hands for the extraction of arrows as even animals possess this power in a considerable degree Elephants have been seen to extract weapons with their trunks, monkeys extract thorns with considerable skill, and dogs remove splinters and thorns, on occasion, with their teeth, though they often present the damaged part for the attention of their master, when they cannot effect it with their teeth

THE SECUNDINES AND PARTURITION

Such a wealth of legend has gathered around the disposal of the secundines, and indeed around all the phenomena of parturition, that a cursory review of the whole subject will best serve our present purpose Pliny[21] says that hinds eat the herb seseli and the leaves of the hart-wort before parturition to make labour easy, and that immediately after delivery they eat the two herbs seseli and aros together so that their milk may be impregnated with their juice before they suckle their fawns Aristotle[22] adds that the hind swallows the after-birth immediately after parturition, and that it is impossible to prevent her, as she catches it before it reaches the ground He surmises that the placenta has medicinal properties Apparently it was in virtue of its purgative[23] action that seseli was believed to aid parturition, but, on the other hand, Pliny says that the action of hart wort is to arrest looseness of the bowels It is impossible to reconcile these contradictory therapeutics, suffice it to say that the oral transmission of medical lore is not conducive to its accuracy

With regard to the mare, Pliny[24] writes that "the colt is born with a poisonous substance on its forehead known as hippomanes and used in love philtres, it is of the size of a fig and of a black colour The mare devours it immediately on the birth of a foal, and until she has done so she will not suckle it" According to Cuvier, a concretion is sometimes found in the liquor amnii of the mare which she instinctively devours, as other quadrupeds do the after birth, but I have failed to obtain corroboration from horse breeders, and incline to Aristotle's opinion that all the stories about hippomanes are old wives tales Probably the whole fiction arose out of the mare eating the placenta Vergil[25] seems somewhat uncertain as to the exact nature of hippomanes, for in one passage he accepts the description given by Pliny, while in another he describes it as the vulval discharge of a mare in season

The belief in the galactagogue properties of the placenta clearly prevailed in Pliny s time as it does even to day, in spite of a good deal of experimental evidence in a contrary sense Lederer and Pribram[26] claimed to have produced within a few minutes of the injection of placental extract an enormous increase in the amount of milk secreted during a period of two or three minutes soon after the injection This may however have been produced merely by a temporary and more rapid evacuation of the mammary reservoir by rise of pressure from increased muscular tonus Dixon and Taylor[27] claimed to have found such pressor substances, but Rosenheim[28] showed that they were products of putrefaction in the placental extracts employed in their experiments

Lane Claypon and Starling[29] obtained negative results as regards increased activity of the mammary glands, from injection of placental extract Their experiments, however seemed to show that the growth of the mammary glands during pregnancy is due to the action of a specific chemical stimulus produced in the fertilised ovum, which is increased in amount pari passu with the growth of the fœtus They suggest that lactation is due to the removal of this substance, which must be regarded as exerting an inhibitory influence on the gland cells, hindering their secretory activity and furthering their growth, in that case it is probably also a chemical product of ovarian activity that stimulates growth of the breasts Biedl and Koenigstein[30] in the main confirmed the findings of Lane-Claypon and Starling

Frank and Unger s[31] experiments led them to think that the changes in the breasts, both at puberty and in pregnancy, depend entirely on ovarian activity and have nothing to do either with fœtus or placenta They consider that the changes in the breasts, found by Lane Claypon and Starling after injection of fœtal extracts, do not exceed the physiological degree of variation in size occurring normally in the breasts of virgin rabbits

Basch[32] suggested that some substance elaborated in the placenta activates the ovary, which in turn stimulates growth of the breasts, with ultimate lactation, but other experimenters have not confirmed him The general tenor, then, of recent experimental evidence is decidedly opposed to the ancient belief that animals devour the placenta so as to excite or to increase secretion of milk If, then, primitive man acquired the habit from observation of animals, he was following a blind guide

PLACENTOPHAGY

Much interesting evidence is available as to the primitive method of disposing of the placenta In 1556 the missionary Jean de Léry[33] reported that the Brazilian natives devoured the placenta, and this was subsequently confirmed by Engelman and Rodet Raynal says that in America, the Topinambous and the Tampuya devour the after birth, the same practice persists in certain parts of the Soudan About the year 1700 A D the traveller Gemelli Carreri observed that among the Yakouts a people of Russian Asia, the father took the placenta immediately after delivery had it cooked, and regaled his parents and friends But there is no need to go so far afield for evidence of this mode of disposal of the placenta, for Reverdin[34] records an instance in his own practice A woman, immediately she had been delivered, begged to be permitted to see the placenta which was lying steaming on a cloth Reverdin handed it to her unsuspectingly, and she expressed surprise at its appearance and examined it closely Suddenly she seized it and with a wild cry devoured it Next day he asked her why she had done it, and she told him that a wild desire to do so had overcome her "Do you still crave for it? asked Reverdin "Phew! What a disgusting idea!" she replied "I cannot conceive how I came to do it" Other instances of the kind are to be found in contemporary medical literature,[35] and no doubt the occurrence would be much more frequent were not the placenta so sedulously secreted and so expeditiously disposed of by the midwife

It is difficult to appreciate how the custom arose of the husband devouring the placenta instead of the parturient wife, but the same might be said of the couvade, here, again, tradition seems to afford a clue In Chinese medicine placenta is used as an aphrodisiac Suetonius says that Cesonia excited the sexual passions of her husband Caligula by administering it to him in a potion, and in recent times women used to keep the umbilical cords of their female children so as to excite their lovers Placenta figured in the pharmacopœias of the seventeenth century for use as a galactogogue, an aphrodisiac, a laxative, and a remedy against sterility chlorosis, and uterine disease In all these uses one detects the trail of sympathetic magic and no trace of rational pharmacy For a similar reason powdered egg shells found a place in the old pharmacopœias, regardless of the fact that they are of extra embryonic origin, they do however, appear to exercise some beneficial physiological influence, for there is some evidence that they help fowls to put on weight, may be that they supply calcium salts in a readily assimilable form A French writer has suggested that they act on the fowl by stimulating its generative system, and he has no doubt of the aphrodisiac action of the placenta when devoured by the

[20] Æneid XII 411 seq Arist, H A IX 6 Pliny, N H VIII, 41 and XXV 53 [21] N H, VIII 50 and XXV 18
[22] Hist Anim IX, 6 [23] Galen N A VIII 50
[24] N H VIII 66 [25] Æneid IV 515 Georg III 280 seq
[26] Arch f Physiologie 1910 [27] Brit Med Jour 1907
[28] Journal of Physiology 1909 [29] Roy Soc Proc 1906
[30] Zeitschrift f Exp Path u Therapie 1910
[31] Arch of Int Med, 1913
[32] Monatschrift f Kinderh 1909
[33] La Placentophagie Journal de Med de Paris Sep 7th, 1902
[34] Compt rend. Soc d'Obst de Gynec. et de P Histr de Paris 1904 vi 91
[35] R Besson La Placentofagia Clin Ostet Roma 1905 vii 1 5 and L Gross Ueber Placentophagie Med Woch Berlin, 1905 vii 212

female rabbit and guinea pig If we admit the existence of such aphrodisiac properties even in imagination it suggests a reason for the male feasting on his wife s placenta. In India, where fertility is more prized than in this country, aphrodisiacs occupy a prominent place among medicinal remedies, it is only in the last few years that they have fallen out of the English text-books

With wild mammals it is the rule for the mother to eat the placenta Dr Chalmers Mitchell assures me that this is the case with deer, wild asses zebras, wild cattle, marmosets, and rabbits Apes do not breed in captivity, so that nothing is known of their placental habit There is a striking contrast with many domestic animals in the treatment of the placenta. Mares and ewes hardly ever eat the placenta, but instances of each are known. Cows vary greatly, thus a breeder of South Devons tells me that, left to themselves, 50 per cent eat it while an owner of cross-bred stock speaks of it as exceptional The evidence of rustic cowmen is tainted by their ingrained conviction that every cow would eat it given the opportunity Sows, cats, and bitches in the vast majority of cases eat the placenta. In the case of the sow the last two or three pigs are often discharged along with the placenta and she is very apt to swallow them along with it, no doubt mistaking them for placenta Sows sometimes eat their whole litter, it is said that they never do so after they have once suckled their young pigs, this throws a curious light on the mental process by which a sow becomes aware of the identity of her young Cats marmosets, and rabbits, all of which eat the placenta, are also liable to eat their young Birds, at times eat the shells of the hatched egg though the more usual procedure is to eject them from the nest and often to carry them to a distance from the nest

It is interesting to note how much more frequently the placenta is eaten by wild than by domestic animals, and I would suggest that the purpose is to conceal all trace of the existence of their young from predatory foes Secretiveness with animals, and with wild animals in particular dominates every detail of parturition They hide themselves away, and if watched curl themselves up so that it is exceedingly difficult to follow their procedure As soon as the young are born they endeavour to keep them out of sight of an intruder by interposing their own body Can this too, be the explanation of the habit among the carnivora of eating the dung and lapping the urine of their young a habit that persists in the domestic cat and dog? Animal motives, like human motives no doubt are often mixed, and what serves the end of cleanliness may equally serve other ends as well I had expected to find some trace of this habit among puerperally insane women but have not succeeded and one would hardly look for it among the sane at present standards of cleanliness and civilisation

POSITION IN PARTURITION —TREATMENT OF UMBILICAL CORD

This is but one instance of a striking uniformity of habit among primitive men and animals in the procedure of parturition, in the matter of posture we shall find the same The recumbent posture in parturition is by no means universal with the human female Only a few years since and perhaps still it was a common practice in some country districts for a woman to be delivered standing and supporting herself with her arms on the end of the bed, some midwives indeed insisted on the erect position I retain a most vivid recollection of my first attendance on a woman in labour and her restless promenade of the room for all the world like a hungry lioness pacing to and fro inside the bars of her cage, rupture of the membranes occurred and the head of the child was actually protruding before I could persuade her to lie on the bed In native races it is common for women to be delivered on the march with supreme ease and with little or no pain Peter Martyr[33] has a brief picture of parturition which illustrates this matter When the women know it is time to be delivered of the child they go into the neighbouring wood and there taking hold of the boughs of any tree with both their hands they are disburdened without the help of any midwife and the mother herself speedily running taketh the child in her arms and carrieth it unto the next river There she washeth herself and rubbeth and dippeth the child often and returneth home again without any complaint or noise, and giveth it suck, and afterwards as the manner is she washeth herself and the child often every day' This helps us to understand why Leto clasped a bay tree when about to give birth to Apollo and Artemis, and the prevalence of the same practice in Sweden in former days. Frazer suggests that the parturient woman was seeking moral rather than physical support in an appeal for an easy delivery and avoidance of the perils of child birth addressed to the tree spirit embodied in the tree who was credited with power over the fertility of women Our museums also and illuminated manuscripts testify that the recumbent posture in parturition has only been arrived at by a gradation of stages, the sitting posture having been long in vogue.

Passing to animals, we find a general statement of Aristotle[34] that 'quadrupeds, as a rule, lie down for parturition, and in consequence the young of them all come out of the womb sideways The mare, however, when the time for parturition arrives stands erect, and in that position casts its foal" As a fact mares usually foal lying down in this country but it must not on that account be assumed that Aristotle s statement is necessarily wrong For example, among cows posture seems to vary to some extent with the breed, as a general rule they calve lying down; but whereas this is the case with South Devons, Devons often calve standing In difficult labour a cow often gets up from lying down when the calf is half born, probably so as to facilitate labour Ewes, as a rule lamb lying down on one side exceptionally they stand, and the same is the case with sows bitches and cats Speaking generally then, the domestic animals whose habits have been most likely to influence man, adopt a recumbent posture like the human female, but there are many exceptions to the rule

In animals such as mares, cows ewes and sows the cord is practically always severed as the animal rises or if she is delivered standing by the descent of the young, with mares the cord not infrequently breaks close to the navel and there is danger of losing the foal from hemorrhage With carnivora the cord is frequently intact and the animal divides it with her teeth before she rises Wild animals are so secretive over parturition that even if one be present, it is difficult to see what they are doing, rats certainly, like bitches and cats, divide the cord with their teeth, and Mr Pocock of our Zoological Gardens informs me that he is under the impression that this is true of most carnivora. A primiparous bitch is less expert than one that is multiparous in severing the cord, and is apt to sever it too close to the pup s body Foals are not infrequently born in their membranes and die of suffocation but in the case of a calf so born the mother ruptures the membranes by licking them with her rough tongue This is only one illustration of the far stronger maternal instinct of the cow than of the mare and does not bespeak a purposive intelligence

In the treatment of the umbilical cord I have succeeded in finding in man a vestige of approximation to the animal habit One of the members of this section who for many years conducted a large general practice in South Wales tells me that he was cognisant of an instance in which a young idiot woman divided the cord of her infant with her teeth I have encountered no other instance either in literature or by personal inquiries and I should value greatly other information on this head and indeed on any matters touched on in this paper Letisem says that native South American women commonly divided the cord with a firebrand which cauterised the vessels so that they needed no ligature

To the ancients it seemed reasonable to explain similarity of practice by the assumption that man had taken a lesson from animals but for us it is more reasonable to suppose that we have to do with the maintenance of a habit acquired before the partition of the common ancestral tree

THE TROCHILUS AND THE CROCODILE

The toilet of the month has its legendary origin in the story of the trochilus which serves also to illustrate the danger of incorrect inference from correct observation Herodotus Aristotle Ælian and Pliny all tell it in much the same terms Ælian says that leeches invade the mouth of the crocodile as it swims with it open and cause the animal much discomfort, feeling the need of the medical aid of the trochilus it swims to the bank and lies there with its jaws agape whereupon the bird enters and removes the leeches

[33] Dec 7, ch ix., p 275

[34] H A VI 22.

[34] Na Anim., III 2.

while the crocodile remains perfectly still so as not to harm it Pliny suggests that the animal opens its jaws to admit the trochilus because it enjoys the titillation of its movements Buffon cites a traveller who actually saw the bird enter the crocodile's mouth, which closed behind it each time, and opened again after a while for the bird to emerge Topsel says that the beast reopens its mouth because the bird carries sharp thorns on its head which prick the crocodile's palate, and the modern Egyptian, according to Leith Adams, says that the reminder is conveyed to the crocodile by the horny spurs of the bird, which Brehm identified as the Egyptian plover One can scarcely doubt that the performance is due to the bird s quest for palatable food and not to the intelligent demand of the crocodile for the effective scavenging of its teeth

DISORDERS OF VISION

A rich crop of legend grew up around the properties and disorders of vision Men were puzzled by the closed eyelids of the young, and suggested various explanations of the mode by which they acquired sight Pliny[39] says that puppies are born blind, and that the length of time before they acquire sight depends on the amount of mother s milk, so that the more numerous the puppies the later do they acquire it In another passage[40] he states that the swallow employs *celandine as an eye salve to give sight to her young*, and that it can restore vision even when the eyeballs have been plucked out The plant blossoms, he informs us at the time of the swallow s arrival and withers at its departure Probably it is from these facts, approximately correct as they are, that it acquired its botanical name "chelidonium" from the Greek χελιδών = a swallow Pliny recommends its juice blended with Attic honey as a sovereign remedy for films of the eyes and its virtues have been perpetuated in the use of the term "chelidonia" for eye salves The almost dazzling brilliance with which the flower in early spring peeps out from its sombre green cushion of leaves may well have suggested its sympathetic usefulness for dim eyes Pliny[41] asserts categorically that it was from the swallow that man learnt the use of celandine for affections of the eye, while Ælian regrets that all their labour to prepare such an eye-salve as swallows use has been in vain

Hawkweed also enjoyed high repute in diseases of the eye Pliny says that the hawk distils its juice into her eyes to prevent any dimness of vision, and mixed with human milk he recommends it as a cure for all diseases of the eye It was necessary to postulate the employment of some such specific remedy to explain the marvellously keen sight of the hawk's eyes Ælian[42] has it that "physicians use this same remedy for eye diseases, nor do they deny that they have learnt it from birds, but prefer to profit by the knowledge"

Fennel too, stood high in favour in the treatment of diseases of the eye Both Ælian and Pliny[43] were aware of the fact that when a snake changes its skin the discs over the eyes peel off with the rest, and appear as dry lenses in the slough Pliny seems to say that the snake takes fennel internally to aid exfoliation, and also applies it locally to the eyes to sharpen its sight and it was this knowledge that led to its use by man as an eye salve In later times euphrasia was used similarly in eye diseases, but according to the doctrine of signatures, as it has a black spot on its corolla resembling the pupil When Michael in "Paradise Lost" opens the eyes of Adam to see the future of the world and of his own progeny therein, he

> purged with euphrasie and rue
> The visual nerve, for he had much to see,
> And from the well of life three drops distilled

Ambroise Paré asserts that the operation for cataract was discovered by means of a goat with a film overlying the pupil tearing off the film accidentally when scratching itself against a thorn, and in consequence recovering its sight, but Ælian and Pliny[44] reject the accidental character of the goat s discovery Pliny says that the female goat uses the point of a bulrush and the male the thorn of a bramble for its manipulations but neither he nor Ælian appreciates the nature of cataract as Pliny conceives that the cure is due to escape of blood that has surcharged the eyes, and Ælian to the escape of some morbid humour

[39] N H. VIII 62. [40] Ib XXV 50 [41] Ib VIII 41
[42] Nat. Anim II 43
[43] Ib IX. 16; and N H VIII 41 and XX 95.
[44] Nat Anim VII 14 and N H VIII 76.

The phenomenon of nyctalopia in man was known to the ancients, and goat's liver was eaten for its cure, as it was believed that goats could see by night as well as by day, but in the discussions of the non medical writers of antiquity there already exists a confusion as to the meaning of the term, some taking it to mean "able to see only at night," and others "not able to see at night" It is an interesting example of the widely prevalent organo therap of early medicine

ANIMAL TRANSFORMATION —FOREKNOWLEDGE OF WEATHER

Melampus is said to have learnt the purgative action of hellebore from observing its action on goats He used the drug with success in the cure of the daughters of Prœtus, King of Argos, who fancied themselves metamorphosed into cows, to gratify the anger of Hera Accounts differ as to whether Melampus sent them the milk of goats that had eaten hellebore, as nowadays one might send rodagen, or gave hellebore itself, joined with certain superstitious remedies Having regard to the action of the drug, the wonder is that the ladies were not still further confirmed in their hallucination In this fabulous setting we catch a glimpse of the old time belief in animal transformation, which found its most extravagant expression in the state of lycanthropy Ovid[45] describes the transformation of Lycaon into a wolf Aetius, Avicenna Oribasius, and others speak of it as frequent Burton[46] descants on the wide prevalence of this mental disorder in olden times The idea of the were animal struck its deepest roots in Scandinavian and North German soil, men fancied that by donning the skin of a wolf they could become wolves at pleasure It is less common in Greek and Latin folk story, but a familiar example is to be found in the eighth Eclogue where the lover, by using Poetic herbs is enabled to see Moeris transformed into a wolf Lycanthropes, like wolves, often lay hid during the day and at night wandered abroad, haunting the graveyards and barking and howling

Knowledge of the action of hellebore was not the only gift bestowed on Melampus by animals His gift of divination he owed to some serpents that he rescued from death and reared, they in return cleansed his ears while he slept with their tongues, so that when he awoke he understood the language of birds, and so learnt the mysteries of the future that it is their privilege to foreknow Melampus had at least one valuable remedy in his armamentarium for he cured one of the Argonauts of sterility with steel drops administering the rust of iron in wine for ten days In ancient medicine prognosis was esteemed as highly as healing, and man desired to share with animals, and especially with birds, their faculty of foreknowledge Nature seemed to have endowed them with power to presage the weather by observing the skies—a gift of first importance to a primitive agricultural community Vergil[47] mentions as foretelling the coming of rain the flight of cranes and swallows the heifer scanning the face of the heavens, the clamour of rooks and of ravens and the plaintive chatter of frogs in the fens In Germany even now green frogs in tall glass bottles are used as barometers, in fine weather they ascend, in wet weather they descend little wooden ladders each step of which marks a degree Buckland succeeded in using leeches similarly for the same purpose Many an old maid to-day in London will tell you that her cat keeps close curled up before the fire when snow is coming

OTHER EXAMPLES OF BELIEF OF KNOWLEDGE GAINED FROM ANIMALS

Besides foreknowledge of the weather man was believed to have acquired much other useful knowledge directly from animals The ancient Egyptians believed that the art of writing had been learnt from the sacred baboons that were kept in their temples, when a fresh baboon was admitted, its fitness was tested by the priest putting writing materials into its hand and calling upon it to write Topsel suggests that the practice of circumcision may have been learnt from them, as the young are brought forth circumcised, at the least wise in some appearance, whereunto the priests give great heed to accomplish and finish the work begun There is no obvious anatomical peculiarity in the prepuce of the young monkey, unless it be its great laxity permitting really

[45] Metamorph I 7
[46] Anatomy of Melancholy ed 1904 vol I p 13
[47] Georg I 378 seq

protrusion of the glans penis, to explain this idea, and such evidence as we have seems to point to the origin of circumcision as not a medical or sanitary measure but rather as a feature of primitive sacrificial ritual These sacred baboons were held to have originated the division of day and of night into twelve equal parts, so as to afford a model for construction of the water clock

There was a widespread tradition that music had been learnt from birds, and chief among them the nightingale, in Hindoo poetry it is the kokilas, the Indian cuckoo, that teaches melody Birds are often credited with bringing down fire from heaven, in Polynésia it was a red pigeon, in French folk lore the wren The tale runs[42] that all the other birds, except the owl, contributed a single feather apiece to replace the scorched plumage of the wren, so as to keep it warm in the coming winter For its ill-nature the owl was condemned to eternal seclusion during the warm day, and to perpetual suffering from cold during the night and the other birds maintain the punishment by pestering it if it appears in sunshine. Every nation has its Prometheus, in Greek legend it was a man, among the North American Indians a stag, but the myth never tells how the fire was produced, in conformity with the circumstance that the maintenance of fire accidentally produced seems always to have antedated the discovery of how to produce it

It would be interesting to hear the chatter of the native East African over the domestic meal after watching an aeroplane soaring in the sky, he would probably recognise in its movements, its outline and its mode of propulsion another gift of knowledge from birds to man, confusing what is in part due to imitation with what appears to be due to instruction Ælian[43] asserts that birds know all the remedies that man employs, he cites the application of marjoram to their wounds by partridges storks and pigeons Pliny,[9] too gives a list of purgative herbs used by birds but, if we can be sure of their identity, few, if any possess the properties claimed for them

The sedative properties of lactucarium, or lettuce, were widely accepted, Aristotle and Ælian[31] state that it is used by the dragon to relieve a distended stomach Venus was said to have lulled her grief at the death of Adonis and repressed her desires by throwing herself on a bed of lettuces Experiment has failed to show any sedative action in the juice of lactuca, and belief in its hypnotic properties is probably due to the similarity in appearance and smell to the juice of the poppy

Fallopius[2] asserts that the ape taught man the laxative properties of cassia, and in view of the fondness of monkeys for fruit it is not impossible that man may have observed its laxative effect

Cytisus[3] was believed to possess important galactagogue properties and was given to cattle for this purpose Aristomachus an Athenian medical author recommended that an infusion of the plant, mixed with wine should be given to nursing women when their supply of milk was deficient The active principles of cytisus are sparteine and scoparin, neither of which is known to possess galactagogue powers Scoparin produces some amount of diuresis, probably by action on the renal epithelium Possibly the flow of milk might be increased if the juice were given in great dilution, or if its bitterness induced free drinking of water

Dogs were said to have taught man the use of pellitory for expelling calculi one wonders whether the belief may have arisen in an attempt to explain the name

ANIMALS AND KNOWLEDGE OF NATURE OF FOOD

If man learnt the use of drugs from animals, he must have paid a price in some cases for his knowledge Thus horses eat aconite with impunity, birds rabbits and many herbivora belladonna, and its effect on horses and donkeys is but slight. Goats sheep and horses eat hemlock without ill effect yet it poisoned Socrates Henbane has little effect on sheep cows pigs and pigeons and ipecacuanha does not excite vomiting in rabbits

Animals seem to acquire their knowledge of poisonous plants from experience and not by any innate instinct, our domestic animals when transported to other countries at first eat poisonous plants which they learn afterwards to avoid Snell observed that strange sheep frequently fell victims to the poisonous hellebore that grows abundantly in the valley of the Ahn, but that it is carefully avoided by the sheep of the neighbourhood Pliny[44] was evidently aware that cattle did avoid certain poisonous plants and he instances the anagallis as one, but he goes further and asserts that if they eat it by mistake they have a remedy at hand in a plant that is an antidote Lambs and calves grazing in the same field as their mothers are far more prone than they to eat poisonous plants Morgan[45] concluded from observations of feeding young birds with various caterpillars, beetles, and worms, that in the absence of parental guidance, young birds have to learn by experience what is good to eat and what is not, and that they have no instinctive aversions At first they peck at everything but once they have found that a particular thing is distasteful or harmful in future they entirely avoid it Tegetmeier found that pigeons reared exclusively on wheat or barley would starve before eating beans, but if a bean eating pigeon were introduced among them they would soon imitate and adopt the habit instinct yielding to experience, in the same way fowls sometimes refuse maize, until they are placed with maize-eaters when they not only eat it but become exceedingly fond of it Newly caught birds are apt to starve unless the cage-food is mixed with food to which they are accustomed Each bird seems to make its own observations its own experiments and its own discoveries in the matter of food, and the rapidity with which knowledge acquired may be propagated is shown by the readiness with which the habits of other members of the species are imitated

The taste for meat is not infrequently acquired by herbivorous animals, and once acquired may amount to a veritable passion Parrots[56] that have lived on insects and berries have been known to acquire such a liking for meat that they have actually pecked to death animals as large as sheep and porpoises, so as to eat their flesh in place of their habitual food Horses will take to flesh eating, and have been known to snap up young pigeons and chickens, meat diet is said to render them savage Reclam[57] saw squirrels and rabbits gnaw greedily bones thrown to them, though they had abundance of vegetable food, both Darwin and Brehm record instances of cattle taking to a diet of fish on certain islands when pasture failed them

FOODSTUFFS IN PRIMITIVE PHARMACY

Man doubtless, will have acquired much of his knowledge of the nutritive and medicinal value of plants by the same method as the lower animals, by experience Like them too he will have profited by imitation, and imitation embracing his observation of the habits of the lower animals It must have been of immense importance to man, when he depended largely for food on wild animals captured in the chase to watch them closely so as to know their habits Baited trap-holes being one of the chief modes of capturing game, a knowledge of the favourite foods of animals must have been a first condition of success This, together with his passion for their domestication, to be at once his companions and his servants must have given him an intimate knowledge of their foods and their effects Further there is not wanting evidence that he did use animals and even his fellow men as subjects of research in this field, for the Philippine pygmies, if they fancied a fruit were poisonous, would soak it for two or three days, and then give it to one of their dogs, if he seemed none the worse they would eat it themselves The American Indians first tested arrow poisons on the old women of the tribe

That a good deal of man's medicinal knowledge arose accidentally in his efforts to extend the range of his food supply is suggested by the prominent place occupied by food stuffs in primitive pharmacy Honey, milk, butter, and cheese appear and reappear in every conceivable combination We shall be less likely to underrate the importance of honey in the dietary of primitive man if we bear in mind that it was his only readily available supply of sugar Honey and the honey bee were surrounded with a sacred halo of mystery in the mind of the primitive zoologist He believed the bees to be generated from putrid flesh, just as fish and frogs seemed to be generated from the mud, when the rain filled the pools with water This was not an unnatural

[42] Watkins Gleanings from the Natural History of the Ancients.
[43] Nat Anim V 45 N H, VIII 41
[44] H A IX, 6 and Nat An, VI 3
[45] Morg Simpl 35 [9] Pliny N H XIII 47
[56] Buchner Mind in Animals
[57] Habit and Instinct
[2] Zuniga: Franciscan Chronicle, 1738 and Sco + Fillet: Prehistoric Man and his Story

belief, for he saw the maggot-like larvæ in the honey comb, and they seemed to him for all the world the same as the maggots engendered in fly blown putrid meat Pure honey, engendered in the air, might be found in its elemental purity at dawn deposited on the leaves of trees and else where, how else can we account for the deposit on the leaves of the lime? Pliny[59] speculates as to whether this liquid is the sweat of the heavens, or saliva emanating from the stars, or an exudation from the air, purified in the process of distillation Ah! if only it came to us limpid and untainted, as when it set forth on its downward path, before it is corrupted by exhalations from the earth or by the admixture of the juices of flowers and by elabora tion in the stomach of the bee! Pliny[60] describes various kinds of honey with the gusto of an up-to-date apiarist, but he awards the palm to summer honey, for "Nature has revealed in this substance properties most valuable to mortals for, after the rising of each constellation, and more particularly those of the highest rank, or after the appearance of a rainbow, if a shower does not ensue, so that the honey-dew becomes warmed by the rays of the sun, there is produced a medicament, and not real honey, a gift sent from heaven for the cure of diseases of the eye, ulcers, and maladies of the internal organs If this be taken at the rising of Sirius, and this should happen to fall on the same day as the rising of Venus, Jupiter, or Mercury, as is often the case, the sweetness of this substance and the power it possesses of restoring men to life are not inferior to those attributed to the nectar of the gods" Long before the time of Pliny men were aware of the occasional poisonous properties of honey, and rightly attributed them to the flowers from which the honey was gathered. Xenophon records the toxic effect of the honey at Trebizond on some of the Ten Thousand, which has usually been referred to the Azalea Pontica and Rhododendron Ponticum, which abound in that neighbourhood, poisonous honey is met also in Pennsylvania, gathered from Kalmia latifolia All the stories of Mithridates having been the discoverer of antidotes seem to be referable to the knowledge that many poisonous plants grew in his kingdom on the shores of the Euxine, as ducks were seen to feed on the herbage with impunity, it was not unnatural that their blood should be regarded as an antidote to poisons

Mixtures of honey with milk or butter are favourite dishes of the Arabs and Hindoos, and recall the Biblical injunction, "Butter and honey shall he eat" Honey is much used in India in ointments in place of animal fats, which putrefy readily in hot climates In this country it has been used as a vehicle for drugs, as in mel boracis, or as a palatable addition with mildly laxative effect in confectio piperis For centuries it has been used as a local application to the aphthæ of children, and Soranus attributes this not to its inherent medicinal qualities, but to the fact that it was taken from hives near the tomb of Hippocrates

Milk was much used as a vehicle for drugs and butter as an ointment or the base of an ointment while Zoroaster seems to have anticipated Metchnikoff by living 30 years in the wilderness upon cheese prepared in such a way as to render him insensible to the advances of old age

Some substances probably found their way into medicine for no better reason than that they were generally ready to hand Anyone who has lived among the sons of the soil or among fishermen on remote coasts must be familiar with the tendency to use both internally and externally whatever is first to hand I have seen a farmer pick up a handful of dust and mix it with dung from the hen roost and then apply the mixture to a sore on a sheep's back, cobwebs are used to staunch the bleeding of a cut, and so is tobacco, leaves are used in the West Indies as plasters and as dressings, and I am not at all sure that dung pharmacy, for all its later elaboration, may not owe its origin in part to this tendency

Magic was another prolific parent of medicinal remedies, the Echeneis is a good illustration of one introduced in obedience to the dictates of sympathetic magic This genus of sucking fishes has on its head an adhesive disc by which it attaches itself to sharks turtles, and other marine animals, and in default of these to ships Its object seems to be to ensure an ample supply of food by increasing its range of locomotion Its retarding effect on the bodies to which it attaches itself seemed to suggest the desirability of its use for the same purpose in medicine We learn from Pliny[61] that it was used in love philtres, apparently to prevent the affections from wandering, and in obstetric medicine to check bleeding from the womb, to prevent procidentia uteri, and to delay premature birth

POISONS AND THEIR ANTIDOTES

In the matter of poisons and their antidotes, it was believed that man had learnt many valuable lessons from animals The poisonous bite of the serpent and the source of its poison were bound to excite speculation Ælian[62] lays it down that animals acquire poison by feeding on poisonous things, thus the sting of wasp, he says, is far more dangerous if it has tasted a viper, and a fly, if it has touched anything of the kind, has a more harmful bite and causes greater pain Homer[63] depicts the dragon lying before its lair eating baleful herbs, and Vergil[64] paints the same picture of the snake Numerous antidotes to the snake's poison were in use Pliny[65] says that the plant chondrion, the identity of which is obscure, was employed with good effect, as field mice were known to eat the plant when bitten by snakes The same writer[66] asserts that the tortoise eats the plant known as cunile bubula so as to recruit its powers of effectually resisting serpents, and he recommends the juice of the plant in wine to be taken internally, and the bruised leaves to be applied locally for their bite Aristotle[67] says that the tortoise, when it has eaten a snake, feeds on marjoram and he declares that one was seen to do so repeatedly during its repast, seeing this the observer rooted up the marjoram with fatal results to the tortoise Some of the larger tortoises and turtles do prey on small reptiles, and this must have seemed to call for explanation to those who were familiar for the most part with the herbivorous diet of the smaller land species The tales of the weasel and the ichneumon in this connexion seem to be all referable to the mongoose Lyddeker identifies the ichneumon with the Egyptian mongoose, and the similar appearance of the weasel not unnaturally led to confusion Both Pliny and Ælian[68] say that the weasel protects itself against the serpent by eating rue but recent experiments tend to show that the weasel will not attack serpents. Wilkinson, in his "Ancient Egyptians," says that an Arab assured him that the ichneumon is very dexterous in killing serpents, and that, whenever bitten, it has recourse to a plant, of which it eats part and applies part to its wound, and then returns revived to the encounter According to Lindsay,[69] the Indian mongoose, when poisoned by a snake-bite, uses Mimosa octandra as an antidote, the mongoose plant, Ophiorhiza mungos, is used for the same purpose in India. Most countries have their particular antidotal snake-root, in North America and Canada the roots of Liatris spicata, Eryngium aquaticum, Eupatorium altissimum, and Asarum Canadense are all in favour, and elsewhere Aristolochia serpentaria Polygala Senega, and Cimicifuga racemosa have all been used for the same purpose Most of these contain active principles, which in warm decoctions induce diaphoresis or diuresis the idea being that the poison will be eliminated by the skin or kidneys

Spider s venom was regarded with only less fear than that of the serpent The tale was told that the toad, when bitten by a spider, ate the leaves of the greater plantain, and succumbed to the bite when these were not available Deer were said to protect themselves from the poison by eating crabs The victims of that epidemic form of convulsive hysteria known as tarantism, which flourished over wide areas more particularly in Italy, believed themselves to have been bitten by the tarantula spider So ingrained was this belief that Constantine the African, the most learned physician of Salerno stated that those who were bitten were liable to eject from their stomach and bowels substances resembling a spider's web It was nevertheless not an animal venom but a mental poison that was propagated from person to person in a human soil sensitised by long years of pestilence and warfare The efforts of the victims to cure themselves by wild dancing, excited and maintained by the music of the flute, may be regarded as rational therapeutics according to

[59] N H. XI 12.
[60] Ib XI 14
[61] N H IX 41
[62] Nat Anim IX
[63] Iliad XXII 93
[64] Æneid II 471
[65] N H. XXII., 45.
[66] Ib VIII 41 and XX. 61
[67] H A. IX., 6
[68] N H VIII 41, and Nat Anim IV 4
[69] W Lauder Lindsay Mind in the Lower Animals ii., 324
[70] Aristotle H A IX. 5 and Pliny N H VIII 41.

the notion of the day, for clearly the chemical poison should find an exit in the sweating provoked by the violent exertion of the dance Just so, when disease is conceived as due to a demoniac mannikin within the sufferer, savages resort to violent bodily movements to effect its expulsion

These various legends of the effect of spider s venom on animals and man rest on the most slender basis of fact It is true that all spiders have poison glands which communicate with fangs in the mandibles but the smaller species are quite harmless to man and the larger animals, and it is open to question whether their poison plays an important part in the killing of insects With regard to the tarantula there is little evidence to show that its bite can cause more than local irritation in man and other large animals, this, of course in rare and unfavourable circumstances may be the starting point of a secondary generalised poisoning Some of the larger spiders can undoubtedly kill small birds and animals, but Warburton [1] holds that this is due to the unerring accuracy with which they drive their jaws into the vital nervous parts of their victims Fabre on the contrary, insists that death does not depend on the bite involving a vital part There were some apparently, even in the seventeenth century, who did not believe in the poisonous effect of the tarantula s bite, for Ferdinando, a physician of Messapia, considered the symptoms to be those of a melancholy dependent on the imagination

EVIDENCE OF HEALING PRACTICES AMONG ANIMALS

We may now pass from the domain of legend to the more prosaic consideration of such substantial evidence as there is of the existence of healing practices among animals, and we shall find it disappointingly slight

Livingstone left it on record that some of the anthropoid apes staunch bleeding by pressure with their hand on the wound or by stuffing it with leaves turf, or grass Dr Thomas Savage has recorded the same practice of the chimpanzee Moore [2] extends the range of action to the young in the case of a female monkey which tore leaves from the trees as it fled with its wounded baby in its arms and stuffed them into the bullet wound to staunch the bleeding Darwin [3] notes that the long armed apes sometimes use their arms as crutches, swinging their bodies forward between them The smaller monkeys exhibit considerable skill in the extraction of thorns. They search themselves for parasites and assist their comrades by searching the head and such other parts as each is unable to reach for itself When a flea is caught they examine it critically and then swallow it Darwin mentions an idiot who in searching for lice supplemented the use of his hands with his mouth. Frobenius [4] describes a family party of natives in North Congo seated round a fire searching each other for pediculi, when one was found the captor grimaced cheerfully and hurriedly conveyed it to his mouth. Moore tells of an orang outang that was once bled for some illness which, whenever afterwards it was ill would point to the vein in its arm, as though he wished the operation to be repeated, there is a reliable record of a monkey which similarly appealed for administration of a clyster These records serve at least to show how readily monkeys learn to appreciate a remedy by which they have benefited As we descend in the scale of creation we cease to find any sure indications of the existence of a therapeutic sense, it is more than doubtful if we can refer the licking of wounds or the eating of grass by dogs to this category

Cats exhibit a keen sense of maternity and a mother-cat will sometimes attend fondly on its daughter during the birth of its kittens Cabanes says that they have been known to bite the cord and carry off the kittens to their own nest and there lick them clean I myself can testify to what appeared to be an exhibition of the keenest sympathy of one female cat to another in these circumstances anxiously brooding over and licking the expectant mother, but it may well be that this was no more than the prompting of a confused maternal instinct

Cabanes has some wonderful tales of avian surgery so wonderful that for all his sincerity they would seem to call for further investigation before acceptance He cites M Fatio as authority for the statement that woodcock corn crakes and snipe have been known to pluck their feathers and make most elaborate dressings for wounds and for fractured legs In another instance he alleges that a blackbird with a broken leg failing in its own efforts to dress the fracture, summoned its companions with a cry and then ligatured it admirably It is not difficult to see how a wounded and bleeding leg may acquire an adhesive dressing of feathers without postulating the purposive use of the bird s beak in providing it, and still less a summons to other birds to assist at the operation Anyone familiar with wounded game knows how frequently a matted tangle of blood and feathers is found adhering to a wound In another case Cabanés mentions a quail found in Savoy with its left leg broken above the ankle It was wearing a dressing composed of blades of grass rolled circularly round the site of fracture and bound to one another, the whole formed a lump the size of a hazel nut, and in spite of the riding of the ends of the bones good union had been obtained Here again, it seems easier to imagine an accidental winding of grass-blades round the broken ankle in the bird s frantic efforts to liberate the hanging foot caught in the grass

That auscultatory percussion is practised by birds and other animals is beyond question, yet it can hardly be argued that man adopted the practice from them. Woodpeckers, nuthatches, and tree-creepers tap the bark of trees to see if it emits a hollow sound, if hollow, they continue to tap till any insects emerge, in the same way the aye-aye lemur taps the bark in search of caterpillars, and employs its finger as a probe to search for them

From all this there seems to emerge a strong presumption that below the level of the monkey tribe a healing sense is not existent, and only among the anthropoids is there unmistakable evidence of even a lowly stage of its development In what I have said I have intentionally limited my remarks to curative medicine, but there remains a further fascinating chapter of animal anticipations of sanitary science, with which we will deal on a future occasion

[1] Cambridge Manual Spiders
[2] Universal Kinship [3] Descent of Man P I ch II
[4] Childhood of Man
Duflo in Grand Traité de Thérapeutique 1912

WARFARE ON THE BRAIN [1]

BY E FARQUHAR BUZZARD, M D OXON, F R C P LOND,

CAPTAIN R A M C (T) PHYSICIAN TO OUT PATIENTS ST THOMAS S HOSPITAL AND THE NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC HONORARY PHYSICIAN KING GEORGE HOSPITAL, ETC

"WARFARE on the Brain," a title which allows me a wide choice of subjects for discussion, was selected not on account of a wish to discuss many subjects but because it embraces both the psychical and physical injuries inflicted by warfare upon the highest part of the nervous system There can be no medical man in this country at the present time who is not being constantly brought in contact with these psychical and physical injuries and who does not appreciate the difficulties which surround their proper interpretation and their proper treatment.

This paper represents an attempt, made for my own instruction as much as anything else, to crystallise some of the ideas I have formed with regard to the solution of these difficulties and especially in relation to their practical aspect Pretending to no profound knowledge of psychology I shall not attempt to discuss abstruse psychological problems or theories and I shall hope to be forgiven if my inability to understand the precise meaning of some psychological terms and expressions leads me to their misuse For the most part my remarks will deal with the principles of diagnosis and treatment which as the result of experience I have come to regard as important, and my subject will be divided into two parts under the subtitles of (1) Shell Shock and (2) Traumatic Epilepsy

Shell Shock

This unfortunate and much-abused term has been allowed to cover a multitude of sins to shelter a mass of ignorance, and to inspire the public with the belief that a new disease has been added to our already long list, the responsibility for which lies with the originators of Armageddon No attempt to treat these cases affords any hope of success until it is realised that the name on their labels covers a number of different conditions and until some effort is made to identify

[1] A paper read before the Harveian Society of London on Nov 2nd 1916

and classify the varieties The process of identification and classification of any particular case is a comparatively simple matter if anything like an accurate account of the patient's experience and past history is obtainable The difficulty arises when these are not forthcoming, and a diagnosis has perforce to be postponed until sufficient time has elapsed for observation or until data can be collected from other sources It must be remembered that the patient's own account may be entirely misleading even more so than it often is in ordinary cases of illness or of injury In particular it is frequently impossible to decide on the evidence given by the patient whether he has received a psychical or physical injury or both, to whether he has passed through a period of unconsciousness or only one of amnesia Let me make at once a crude effort to enumerate and describe briefly the various conditions which are frequently met with and labeled as shell shock.

First of all, there are what we may call the pure exhaustion cases These are men who, starting with an average allowance of resisting power, after a more or less prolonged exposure to the strain of warfare, become restless, irritable, depressed, sleepless, and lacking in attention and concentration If this condition is recognised in an early stage by the medical officer and rest ordered a comparatively short period will suffice for the patient to regain his normal health More often the patient refuses to acknowledge his condition until some crisis occurs in the shape of a severe bombardment, an attack of illness, some extra responsibility, or perhaps some personal anxiety or disagreeable incident Then he is sent home in a more or less advanced condition of "neurasthenia," and something like six months' respite from active service becomes necessary Naturally each individual has his own allowance of resisting power, and consequently the periods of strain which each can endure vary very considerably On the other hand, there may be complicating factors which modify the case, of which one of the most remarkable is alcohol There is no doubt that those men who look to alcohol for support and recuperation fail earlier than those who realise the treacherous nature of its assistance The same applies to the less frequent abuse of drugs for similar ends

The proper treatment of exhaustion cases is obviously rest in bed in quiet surroundings Nevertheless, the patient is generally very reluctant to recognise this, and his feeling of restlessness, often accompanied by a desire for distraction which he regards as the best antidote for his depression, leads him to the opposite extreme with the result that, unless he is taken properly in hand, he goes from bad to worse and after a month or two at home is much more exhausted than on his return from the front I regret to say that some of these patients are badly advised in that they are allowed up too soon and sent to their homes with a recommendation to take at once plenty of exercise in the fresh air Such a remedy for exhaustion is not unnaturally responsible for the prolongation of symptoms, and I come across not a few patients who have wasted a lot of valuable time in pursuing this method of regaining health Over and over again have I encountered dismay and even indignation on the part of the patient for whom I have advised rest in bed as the only remedy for his complaint, and many a time have I been thanked later for my insistence on the advice being carried out

The common fallacy that lack of sleep at night in an exhausted patient must be met by letting the patient tire himself during the day has to be exposed and explained, and the fact that a sleepless patient suffers little real harm if he is resting in bed often needs emphasising The prognosis in this class of case is very favourable under proper conditions of treatment, but the period of rest required varies with constitutional idiosyncrasies and with the degree of exhaustion presented when the patient is first seen

Next to the pure exhaustion cases should be considered those patients who have inherited neuropathic or psychopathic tendencies and in whom the process of exhaustion has excited these dormant tendencies into activity These form a large group, a fact which should occasion no surprise when it is remembered that the Army is recruited in this war from the population as a whole without any attention being paid to the hereditary or constitutional fitness of the recruit to stand strain or fatigue In this group we may place many patients who exhibit either for the first time or in the form of a relapse such phenomena as tics articulatory defects epilepsy, or phobiæ on the one hand or more serious forms of insanity on the other The tics and stammers are frequently found in patients who have been subject to similar troubles earlier in life and can generally be cured, after a suitable period of rest, by the re educative methods usually employed Other phenomena require their appropriate treatment, but very few of the patients belonging to this category should be sent back to active service, many are best dealt with by return to civil life and some are suitable for the less strenuous military duties of home service

Reference may next be made to a comparatively small class of what we may call 'martial misfits" These are men who are compelled to join the Army by public opinion who may pass as normal individuals in ordinary life, who are quite aware that they cannot stand the strain of warfare and who are often quite frank in confessing all these facts to the medical man who attends them on their return from the front Some of them will tell you that they have entertained quite a keen curiosity as to the length of time they could remain in the fighting line, and at least one has told me that this question was a matter of chaff and even of a bet between him and his companions in the days of their training Their stay at the front is as a rule too short to produce very severe or lasting symptoms, but they are quite convinced, and rightly so, that any attempt to return would only lead to a similar result They are glad to have "done their bit" and they would like to continue in khaki until the end of the war, but I have no doubt in my own mind that they would really be serving their country better as civilians

So far I have confined my attention to the case of soldiers who have not suffered the direct effects of shell explosion or in the case of whom such a shell shock, of more or less severity, has only been one factor, perhaps the culminating factor, in bringing them under medical care We must recognise in addition the normal healthy individual who suffers from concussion as the immediate result of a too close intimacy with a shell explosion and who reacts in the same way as do most patients to a severe blow on the head The period of unconsciousness is followed by a more prolonged period, during which the patient evinces symptoms similar to those of exhaustion He is easily tired, irritable, over reactive to auditory and visual stimulation, lacking in confidence and concentration, and often depressed He suffers from headache, insomnia, or fighting dreams, and in brief resembles the exhausted patients I have referred to already This resemblance is not confined to his symptoms, but extends to his treatment, and I do not think that one can emphasise too strongly the importance of prolonged rest in bed in all cases of severe concussion attended by loss of consciousness even in the absence of any evidence of a fractured skull or of neurological signs As a physician, I am convinced that I should see considerably fewer patients suffering from the after effects of head injuries if other practitioners and even surgeons, were at one with me on this point In my military wards and in my practice I make a general rule that all cases of severe head injury, however quickly they appear to lose their symptoms spend at least four weeks in bed

Here I should like to say a few words about diagnosis. In these days, when so many cases suffering from shell shock without apparent physical injury pass under observation it is very easy to overlook the exceptional patient who has sustained some definite local damage to his brain Let me give you an instance In August, 1915, an officer was blown by a shell a distance of many yards and lay unconscious for a few minutes He found himself unbruised regarded himself as merely shaken, and carried on with difficulty for 24 hours Finding his legs unreliable he then went sick and was sent home as a case of shell shock He remained a case of shell shock until February 1916 when I first saw him He could then walk five or six miles without much difficulty provided the ground was smooth He complained however, that rough ground was too much for him that in going downstairs he always took the step with his left foot rather than his right and that the latter had a way of turning in unless he looked after it I could find no loss of power, no alteration in the reflexes and no disturbance of superficial sensibility Further examination, however showed that his sense of position and movement in regard to his right foot was faulty that he could not balance himself on that foot, and that he could not appreciate the vibration of a tuning fork on that foot as well as he could on the other

Superficial investigation of his head revealed nothing but an X ray examination showed a slight fracture, without decompression, in the left post-Rolandic region near the middle line of the skull On further inquiry it appeared that his helmet was bashed in over a corresponding area This was clearly a case of severe bruising of the brain over a well-defined spot, severe enough to produce symptoms still recognisable six and, as events turned out, at least eight months later This case serves to emphasise a fact which it is very useful to remember—namely that superficial injury of the sensory cortex does not give rise to ordinary anæsthesia or analgesia, but to disturbance of deep sensibility such as can only be detected by testing the sense of posture and movement, the sense of vibration, and so on.

Much of professional and public interest in shell shock has been centred on another group of cases which attract attention on account of their more theatrical attributes I refer to the patients who suffer from so-called functional paralysis, anæsthesia, mutism, aphonia deafness, blindness, &c If it were not for a certain amount of obloquy attaching to the word I should not hesitate to class them all together under the name of hysteria. I fail to find any essential difference between such cases arising out of the psychical and physical injuries of warfare and those with which we are familiar in civil life, and especially in that part of our civil work which has to do with insurance and medico-legal problems In both groups we are constantly confronted with the same questions. Is the patient consciously assuming some disability or is the latter completely outside his ken and his control? In other words is he malingering or is he not? It is generally assumed by writers on this subject that the answer must be Yes or No, and it is only rarely allowed or even hinted at that the truth may be found somewhere between the positive and negative reply My conception of a malingerer is a person who with a perfectly clear and well balanced mind confesses to himself quite frankly that for some definite purpose he will assume a certain disability My belief in the general honesty of the human mind leads me to the conclusion that such persons are extremely rare But I am obliged especially by lawyers, to state that a patient is either malingering or is suffering from a functional disorder, and by the latter term I am supposed to indicate that the origin of his disability is entirely outside consciousness and totally independent of volition I do not pretend to understand all the subtleties of consciousness or all the workings of volition, but I cannot acknowledge any satisfaction in overcoming these difficulties by an appeal to a subconscious mind or to a process called involuntary inhibition There are several questions which I should like to refer to as having some bearing on this difficult problem

In the first place is it not a mistake to suppose that the majority of patients exercise any clear reasoning in what they do or what they say? Are not most of their acts and words the result of vague and instinctive ideas hovering in and around their realm of consciousness? Education especially a scientific education serves to diminish the extent to which we are influenced by such ideas, but are not the most educated constantly led astray? It seems to me almost an act of cowardice to plead that this or that act or word to which we have committed ourselves and which cannot be defended by reason must be laid to the account of our subconscious mind.

I am told that a fixed idea of paralysis as an explanation of a functional palsy belongs to an effete psychology and I quite agree that any attempt to fix such an idea on any particular part of the cortex is not to be tolerated But the more I see of these cases the more convinced am I that an idea—a *conscious* idea—plays some it may be in a totally confused and illogical manner yet all the same plays some part in the production of all these hysterical phenomena

Colonel C S Myers R A M C (T C) in the course of an extremely interesting paper[2] on functional disorders of speech and allied subjects comes to the conclusion that two kinds of inhibition are discernible the one due to a blocking of the paths that subserve the mechanism of articulation or phonation the block producing the quasi paralysis of functional mutism or aphonia, the other due to a blocking of the paths that control and coordinate their mechanism the block producing the quasi spastic or clonic or ataxic conditions of functional dysarthria. Other writers have made similar attempts to localise the seat of trouble, and one has heard vague references to bilateral lesions of the third frontal convolution as an alternative. Much as I admire the work of these authors in most respects I find myself entirely opposed to any such attempts to localise anatomically what appear to me to be essentially disorders of the mind in the present state of our knowledge or rather in the present state of our ignorance. How can we possibly explain the incidence of these disorders on any anatomical basis? We all knew the expressions "struck dumb," "struck blind," "struck helpless," "deafened" before the war but we never heard of anyone being "struck tasteless" "struck dysphagic," or "struck incapable of mastication" How is it, then, that the deaf, the dumb the blind, and the paralysed are numerous, and that soldiers who cannot taste, swallow or masticate are practically non existent, *unless* some idea—some conscious idea—plays some however small part in their incidence?

Again, what can be the significance of the almost universal rule that soldiers suffering from really serious injuries do not display any of these so-called functional or hysterical disorders? Are we to believe that an entirely unconscious psychical process can explain such a striking feature of warfare? For nearly 18 months I have had charge of a ward devoted almost exclusively to severe injuries of the brain spine, cord, and peripheral nerves, and I cannot remember a single instance in which the neurological symptoms have been complicated by functional disorders of the kind I am now discussing

Colonel Myers, who has seen large numbers of mute soldiers, calls attention to the rarity of mutism resulting from shell shock amongst officers and I believe he says that no instance of the kind has actually come under his observation As it happens I have seen one mute officer who had been subjected to a severe shell explosion and who came under my care as soon as he entered a London hospital. Let me give you the story of his case in a few words I saw him on the afternoon of the day he arrived and found him completely dumb but ready to afford me all information by means of writing After a short examination, during which I did not display a great deal of interest or surprise in regard to his inability to talk I gave the nurse in charge, in the presence of the patient my instructions that no visitors should be allowed until his speech had returned The patient, who had a young wife and a baby he had not yet seen was talking quite freely the next day a cure which he attributed to knocking his head against the rail of his bed in the morning I cannot help wondering whether my instructions to the nurse or the alleged blow on the head exerted the more active influence in removing the block on the paths that subserve the mechanism of articulation or phonation. It may be asserted by some that this was clearly a case of malingering but I should not support that view if the definition of malingerer resembles at all that which I have already suggested.

It appears to me that the fact that so few officers suffer from mutism as compared to the rank and file may possibly be explained by their superior education and knowledge When we remember what an extraordinary state of mental confusion and jumble is produced in so many of our patients by a simple cross-examination of the history and the nature of their ailments or of their injuries, how hopelessly they mix cause time and effect, and how thoroughly satisfied they are with their own perfectly impossible reasons for this and that symptom I do not find it difficult to believe that the psychical and physical injuries of warfare may so disturb the *conscious* mind as to lead to the production of these hysterical phenomena. I quite agree with Colonel Myers when he says that in practice "every grade of transition may be met with between quite uncontrollable functional disorder and sheer purposeful malingering,' and I would go further and say that in every case a conscious idea more or less confused and more or less self-confessed is an important element in each instance.

With regard to the sudden recoveries of speech in mute patients I hold the view that in many cases at any rate the exciting causes to which they attribute their almost miraculous cures are incidents which they choose and sometimes invent for the purpose, and that probably they have previously discovered not only the fact that speech

is possible, but have also realised an urgent desire to recommence normal communion with their fellows

Probably Colonel Myers is correct in describing a state of stupor immediately following a severe shell shock in which the mind is so dazed and absorbed by terror, or by the vivid impression of incidents recently experienced, that communion with the outside world is really impossible, and it is probably during the recovery from the stuporose condition that those conscious ideas which form the basis, or are, at any rate, an important factor in the prolongation of mutism, come into being

With regard to the treatment of all these hysterical phenomena my experience leads me to believe that any form of suggestion, whether applied under normal conditions or under the influence of anæsthetics or hypnosis, may be successful, but that success depends first of all on the willingness of the patient to recover, and secondly on the adequacy of the suggestive stimulation There is, perhaps one other precaution which should be taken by any medical man who has to treat these cases, and that is, while displaying a sympathetic understanding of the patient's story and complaints, not to express surprise or too obvious a spirit of scientific interest, more important still, to refrain from discussing or demonstrating the patient's disabilities before others In the case of a mute it is not good for the patient to hear that he can't talk, it is not fair to him to say that he won't talk, in the present state of our knowledge it is best for everybody, and for science, to be content with the simple statement that he *doesn't* talk

I should not have spent so much time and so many words on this part of my subject if I did not feel strongly how important it is for every one of us to make a clear distinction between what are called neurological lesions and mental disorders, between lesions which can be localised anatomically and disorders which belong to the realm of ideas, and which we in our ignorance can only conceive as having their origin somewhere in the highest centres of the nervous system Hysteria is a *mental* disorder, and, however localised its physical manifestations, everything points to the mind as its source There is much confusion on this point, even amongst medical men, and perhaps this confusion is no more strikingly illustrated than in the matter of "spinal concussion" This term has been used in two senses It is used to describe a functional paraplegia resulting from an injury, but if it is so used it should never be forgotten for a moment that the disorder responsible for the paraplegia is a mental disorder and not a disturbance of function at any level of the spinal cord On the other hand, true cases of concussion of the spinal cord can always be recognised by careful investigation, and any foci of hæmorrhage or softening which result from concussion more or less exactly localised

Let me draw this distinction as graphically as possible by means of two cases In the early days of the war a lad of about 19 was blown up by a shell and sent home apparently completely paralysed from the waist downwards When he came into my ward he had already spent ten months in other hospitals, always nursed with the greatest care, lying on a water bed, with his penis in a urinal, smoking innumerable cigarettes, and eating countless chocolates He was accepted into my ward as a hopeless paraplegic, and I found him lying as I have described He did not move his legs when invited to do so, and these limbs were much wasted and quite flaccid The knee jerks were elicited with difficulty, but the plantar responses were flexor in type In spite of the fact that there was complete anæsthesia to all forms of stimulation from the umbilicus downwards, the abdominal reflexes were preserved and there was no shifting upwards of the navel when he made the attempt to sit up On further inquiry I found that there was no real incontinence and that he passed his urine at intervals into the vessel placed for its reception This was a case which might be called one of spinal concussion, but is better described as one of hysterical paraplegia I directed my treatment not to his spinal cord, but to his mind Isolation, the stoppage of tobacco and all visitors the assurance that he would rapidly get well, together with some suggestive faradisation of his legs, brought about a cure in a very short period, although some time elapsed before his atrophied legs were strong enough to give him any great degree of activity

By way of contrast let me relate the history of another patient whom I saw a day or two ago A young officer was hit in the back by a piece of shrapnel and fell paralysed in all four limbs After a few minutes he had recovered sufficiently to get up and he walked more than a mile to his dressing station When he reached a London hospital he complained of nothing except his wound, which was already well on the road to healing, the foreign body having been removed in France from the muscles of the back near to the left side of the upper dorsal spine He remained in hospital long enough for this wound to heal and then went to a convalescent home On his return I saw him because he complained that when taking a bath he could not feel the temperature of the water with his right leg On examination his power was found to be perfect and all his reflexes normal, but testing his sensibility I found complete loss to heat, cold, and pain on the right side of the body and the right leg from the level of the seventh costal cartilage downwards That was his only defect, and could easily be explained by a minute focus of hæmorrhage or softening in the upper part of the dorsal cord on the left side This was an example of the effects of true spinal concussion manifested by a slight but perfectly recognisable and localisable lesion The importance of discriminating between these two types of spinal concussion is as important in civil as in military work, and especially in dealing with legal claims made in relation to accidental injuries

Traumatic Epilepsy

You will, I hope excuse me if I now leave the subject of shell shock and turn somewhat abruptly to that of traumatic epilepsy as another common result of warfare on the brain. This step is taken because the question of how we are going to deal with a large number of cases of epilepsy arising out of injuries sustained in this war is already, and is going to be still more, one of very great importance to all of us It is a common experience in my practice to have cases suffering from traumatic epilepsy referred to me for advice as to treatment, and not infrequently it is assumed that the treatment must be surgical. It is not my intention to suggest that surgery has no part in the treatment of traumatic epilepsy, but our time will not, I think, be wasted if we consider carefully what are the principles which ought to guide us in the medical and surgical treatment of these patients One of the most difficult subjects in medical science is the pathogenesis of epilepsy, but before dealing with remedial measures it will be well to recall what we know about the incidence of the disease in relation to head injuries, and to inquire how far this knowledge helps us in understanding the pathology and treatment of the condition

In the first place, one is struck by the fact that only a certain proportion of persons suffering from head injuries develop fits

In the second place, we are faced with the discovery that the locality of the injury has no apparent influence in the production, although, of course, it may modify the features, of the epileptic attack.

Thirdly, and this is a matter which we must never forget, the severity of the injury has, as far as we can judge, no bearing on the question as to whether epilepsy is or is not likely to supervene We have all seen, or will see, instances of this disorder following trivial blows on the head in connexion with which no injury to bone, membrane, or brain can be demonstrated. We find it following simple or depressed fractures of the skull, and we find it perhaps equally frequent as a sequel to severe lesions involving the membranes and the brain itself But we must not forget that there are numerous patients, all of whom have been subject to one or other of these grades of trauma, who go on living without developing any epileptic tendencies The only conclusion which I have been able to draw from these facts is that we are all potentially epileptic and that we only differ one from another in the ease or difficulty with which this latent process can be excited into activity One of the results which may be arrived at from the experiences of this war may be looked for in the shape of some statistics showing how far neuropathic or psychopathic tendencies of hereditary origin predispose a soldier to epilepsy after receiving a head injury At the present time I am ignorant of any reliable data on which to form an opinion in regard to this question As far as my own experience is concerned it is impossible to prophesy whether this or that patient suffering from a head injury is likely to develop fits and it is my practice, as I shall show presently, to assume that this

is a possibility which we cannot put out of court in any particular instance

What is the right course to pursue in the case of any patient suffering from traumatic epilepsy brought for advice as to treatment? We shall all agree that, in the first place it is desirable to investigate the condition of the patient's head resulting from the trauma he has sustained, and we shall employ not only our clinical methods of investigation, but the help of X rays in order to attain this result In one case we shall find no evidence of injury, although there may be a history of a blow, and we shall be confronted with the question as to whether we are to remain satisfied with the evidence of an X ray examination as to the absence of any depressed fracture. We may feel that a depressed fracture is a condition which should be dealt with surgically and that it is impossible to be sure of its presence or absence without an exploratory operation. This may be a justifiable proceeding in any case where the site of the injury is clearly determined

In another case we find that an operation soon after the infliction of the wound has been performed for the purpose either of exploration for foreign bodies or for sepsis and drainage, that the scar has healed and is healthy, and that there is no evidence of increased intracranial pressure. X ray examination reveals the presence of no foreign body and of no fragments of bone, either deep or superficial and we conclude that a scar is formed in which perhaps the surface of the brain, the dura mater and the scalp are all more or less involved. I hold that in such a case no operation is justifiable that any attempt at surgical interference of any exploratory character can only lead eventually to further scar tissue, and more likely than not to further injury of the brain.

In a third case our examination shows a similar healthy condition of the scar, but the presence of a superficial foreign body or superficial fragments of bone embedded in the damaged surface of the brain or in the tissue overlying it. In this instance we may take the view that such foreign bodies by their weight and mobility, in relation to the pulsation of the brain may exercise some irritating influence upon that organ and we may justify a desire to round up these alien enemies by the conviction that the operation can do no further damage to the brain

Finally, we are confronted with the problem presented by a case in which, again, the wounded parts are healed, there is an opening in the skull, and the X rays reveal the presence of bone or metal embedded in the brain at some distance from the surface. These are the cases which present the greatest difficulty, because we know that any attempt to remove the offending matter is sure to be accompanied by destruction of important nervous tissue and we are aware or ought to be aware that this removal provides no guarantee whatever that the patient s fits will cease to occur It is imperative at this stage to remember that fits originate in damaged brain and not in bone or metal. I believe that we should be guided in such a case by other considerations than those which bear upon the question of epilepsy For instance some pieces of metal by their size and weight appear to give rise to a form of aseptic encephalitis the symptoms of which resemble those of a cerebral abscess in the shape of headache, vomiting optic neuritis and focal signs It is interesting to note at this point that such symptoms of cerebral irritation may not be developed so long as the patient is leading a quiet restful existence in hospital but tend to supervene when he returns home and attempts to carry on anything like a normal existence If this is the case I have no hesitation in saying that the piece of metal must be removed if accessible to the surgeon.

Supposing on the other hand that the foreign body or bodies are small and not giving rise to such symptoms as I have mentioned it is I believe an unwise procedure to resort to further interference Time alone will show what is to be the ultimate fate of many men who are returning to civil life with these small and sometimes numerous relics of their warlike days lying in the brain

So far I have had the presumption to deal with what may be called the surgical aspect of these cases and I must now state as emphatically as possible that whether any surgical procedure has been carried out or no the treatment of the epilepsy has not yet begun The treatment of the epilepsy is and can only be medical and chiefly medicinal It will depend upon the proper administration of bromides and other drugs and the proper guidance of the patient in the kind of life which he proposes to pursue. I maintain that the principle guiding surgical procedures in any case is simply this we must satisfy ourselves that the conditions at the site of injury have been made as healthy and as near the normal as surgery can make them. It is most important that in dealing with any particular patient and before undertaking any operation in connexion with traumatic epilepsy this principle should be explained to the patient and his relatives They should clearly understand that the operation is not undertaken for the purpose of curing his malady, but for the purpose of making the outlook for the success of his medicinal treatment as hopeful as we, in the present state of our knowledge, can expect

The conclusions I have outlined are those based not merely on the short experience of this war, but on a long experience of traumatic epilepsy and the results of operation in civil life, and you will not be surprised that my conclusions are what they are when I tell you that I have never seen a case of traumatic epilepsy cured by operation alone

Anyone who has experience of epilepsy is aware that any drastic treatment may for a time show apparently good results, and that these temporary improvements have often been mistaken for cures The places to look for cases illustrating the surgical cure of epilepsy are the institutions and colonies provided for the incurable and chronic examples of that disease On the other hand, there is every reason to believe that if the assistance of surgery is used in the way I have indicated and if the medicinal treatment of the disease is carried out sufficiently early, with perseverance regularity, and skill the prospect of nipping these cases of epilepsy in the bud is full of hope. The important thing is to bring the effect of bromide to bear as soon as possible in order to prevent the brain acquiring the "habit of fits"

So firm is my belief in prophylaxis and early treatment that I make a rule of giving bromide to every case of head injury which comes into my ward, and if I had my way I would give every case of the kind some bromide for at least six months after the date of his injury The determination of time in regard to treatment is always a difficult matter, and any attempt to lay down fixed periods has generally led to disastrous results It is quite possible that the six months I have mentioned would be better extended to at least a year or even longer

So much for the treatment of the individual. A much larger question should be occupying the minds of those in authority—the question of how to deal with the large number of epileptics who will be left unemployed and unprovided for at the end of the war

There is a consensus of opinion that one of the most important elements in the treatment of epilepsy, whether traumatic or idiopathic in character is regular employment for mind and body So far this country has not dealt with the epileptic problem in a satisfactory way, and it is to be hoped that the Government will make a big effort to improve the lot of these unfortunate members of society by some development of the colony system under medical control This is one of the directions in which a Minister of Health could find plenty of scope for his energies

Wimpole-street W

METROPOLITAN HOSPITAL SUNDAY FUND—At the annual meeting of this Fund held at the Mansion House on Dec. 21st under the presidency of the Lord Mayor it was stated that the annual collection amounted to £70 700, of which sum £35,121 were received from places of worship Hospital Sunday was fixed for the fourth Sunday in June for the future

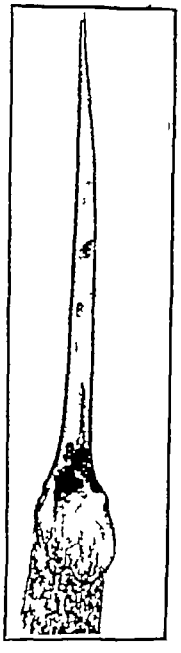
THE TRAINING OF HEALTH VISITORS—At the present moment there is a great demand for health visitors in connexion with the establishment of infant-welfare centres under the new Local Government Board scheme Heretofore the facilities for the training of such visitors have lacked the important essential of affording practical experience in the management of babies The new school of mothercraft which is to be opened in February next at 29-31, Trebovir road S W., by Miss E Wheatley and Miss W Wrench, should afford excellent opportunities for teaching this subject in a practical way for resident babies will serve as the didactic material on which the students can learn The course is to consist of nine months' training and experience will be gained in breast feeding as well as in most of the recognised methods of artificial feeding

PLANT HAIRS AS PSEUDO-PARASITES

BY R DONALDSON, M B, CH B EDIN, F R C S EDIN, D P H SHEFF,
BACTERIOLOGICAL SPECIALIST WAR HOSPITALS READING PATHOLOGIST ROYAL BERKS HOSPITAL, READING ETC
AND
R O McLEAN, B A, B SC LOND,
LECTURER IN BOTANY, UNIVERSITY COLLEGE, READING

IT is perhaps no exaggeration to say that until the present war, routine microscopical examination of the fæces has never been so extensively carried out In the course of this search it is not uncommon to find bodies which at first sight suggest some form of animal parasite Closer examination, however, proves as a rule that the supposed parasite is merely some form of plant anatomy, generally of the nature of plant hairs Ignorance of the general appearance of such hairs, coupled with a hasty examination, might conceivably lead one into error A case in point may be mentioned

FIG 2



Microphotograph of stinging hair of nettle × 60 Note bulbous base and bent-over apex

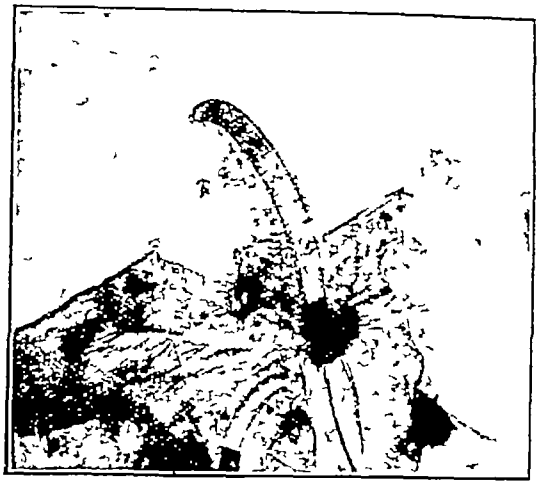
A patient was admitted to hospital on account of diarrhœa which had been unsuccessfully treated outside He gave a history of having lived until recently on the borders of Chili and Argentina The clinician who first saw the case considered the possibility of a parasitic cause and treated the case accordingly An examination of the stools thereafter revealed the presence of large numbers of bodies which at the first glance resembled ankylostoma, and in addition small bladder like structures. The former had a hooked pointed tip, while the other end, which was somewhat expanded, showed the presence of small spines The whole appearance suggested the male form of ankylostoma The size, however, was entirely against its being such, the largest being roughly 300μ Moreover, no oral aperture and no evidence of any internal organs could ever be detected and no ova could be found The patient's blood, while showing a slight degree of anæmia, gave no evidence of eosinophilia A consideration of the above facts pointed to the bodies being plant hairs, and after further investigation we identified them as the grapnel hairs of the common runner bean

As the characters of the hairs found on the common edible plants are probably little known to bacteriologists, and as it is difficult to find drawings of them even when botanical literature is accessible, we considered that a series of illustrations of such hairs might be of some little value as a reference Further, plant hairs have acquired some degree of importance, inasmuch as they may form the starting point of appendicular concretions, as has recently been emphasised by Professor S G Shattock.[1] As plant hairs are composed of cutin they are extremely resistant to the action of the digestive juices, and some of them, notably those of the runner bean above described may

FIG 3

Microphotograph of portion of membrane from scarlet runner with attached hairs × 60

FIG 1



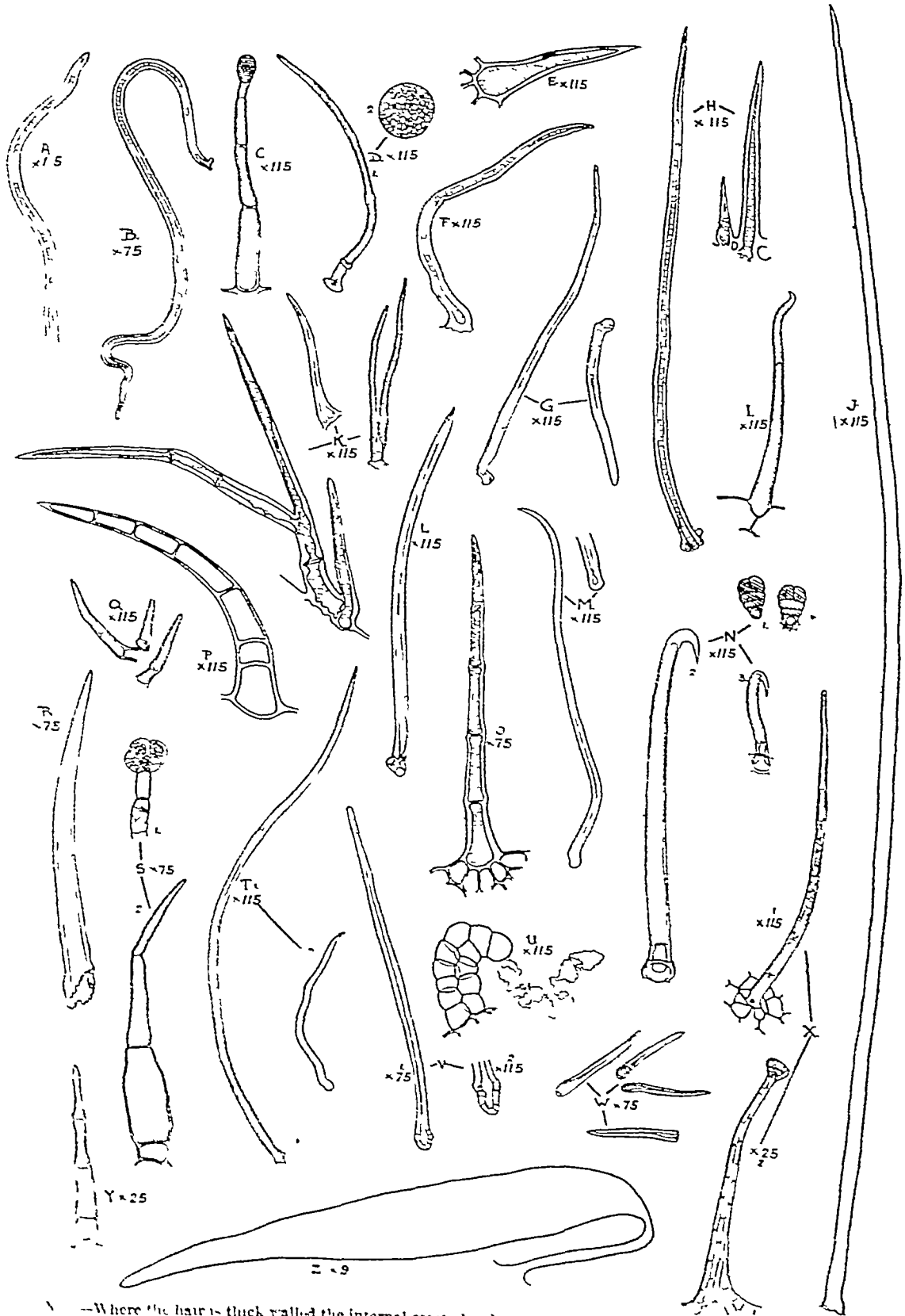
Microphotograph of a short grapnel hair of the scarlet runner × 260

[1] Proc Roy Soc Med vol ix No 9 July, 1916 p 70

DESCRIPTIONS OF DRAWINGS ON PLATE

A. Hair from skin of peach.
B Hair from skin of apple
C Glandular hair from tobacco-leaf The gland is terminal and is shaded in Frequently it is missing and sometimes it may consist of several cells
D 1 Hair from leaf of sage 2. Oil gland with granular contents from same source Exactly similar glands are found in the leaves of thyme and marjoram They suggest ova in appearance and by their yellowish colouration
E. Hair from the interior of the fig
F Hair from skin of pear close to the remains of the flower
G Thick walled hairs from tea leaf
H Two varieties of hair from oat grains Taken from near the apex The hairs attached at a lower level have the basal part set at an angle, somewhat like the hairs found on tea leaves By this device they are enabled to lie parallel with the long axis of the grain
I Hair from mulberry fruit. When older these are filled with deep yellowish colouring matter
J Long silky hair from inner skin of chestnut. These hairs possess very thin walls
K Three types of hair from barley grains The branching is characteristic of these hairs alone among food plants.
L. Hair from strawberry fruit
M Hair from blackberry fruit The small figure shows the basal portion of a larger specimen
N 1 Gland hairs from surface of young scarlet-runner 2 and 3. Large and small hooked hairs from the epidermis of the same vegetable
O Hair from leaf of marjoram (culinary herb) The walls of these hairs are covered with minute rugosities a feature shared also by sage mint and thyme
P Hair from leaf of mint.
Q Hairs from leaf of thyme
R. Hair from rice grain
S 1 Glandular hair from skin of tomato The glandular portion is shaded 2. Long hair from skin of tomato suggestive of an insect appendage
T 1 Thick walled hair from fruit of raspberry 2. Small thin walled hair of ditto These hairs are often much twisted
U Multicellular hair from leaf of dandelion A peculiar feature of these hairs is that the distal portion is almost always withered in the way shown in the figure
V 1 Hair from wheat grain Note the blunt apex and the perforations at the base 2 Base of ditto
W Several hairs from rye grains
X 1 Small hair from fruit of gooseberry These have a very rough surface and their cells contain highly refractile masses as a rule 2. Large glandular hair of gooseberry These are usually visible to the naked eye and the glandular tip bears a superficial resemblance to the head of a tapeworm
Y Large hair from epidermis of vegetable marrow These hairs are also visible to the naked eye
Z. One of the large fleshy hairs which form the pulp of the orange These are more elaborate structures possessing an epidermis of their own surrounding a mass of very thin walled cells They have also a distinct stalk The drawing merely shows the outline

ILLUSTRATIONS REPRODUCED FROM DRAWINGS OF HAIRS FOUND ON EDIBLE PLANTS



—Where the hair is thick walled the internal cavity has been dotted in. The hairs figured are more or less average specimens.

exercise a distinctly irritant effect on the mucous membrane of the alimentary canal

In the identification of any hair the points to which attention should specially be directed are three (1) The number of cells of which it is composed, (2) the thickness of the wall, and (3) the characters of the base or point of attachment. The length of plant hairs varies considerably, sometimes by as much as 100 per cent, and they are frequently remarkably twisted The walls of some are characterised by the presence of certain markings—e g, those found on the culinary herbs, which are warted, and those of the nettle, which show spiral striation

Certain plants do not possess hairs on the edible parts, and these are merely enumerated here —Fruits Pineapples, bananas, currants, and nuts (excepting chestnuts) Vegetables Roots in general, lettuce, spinach, rhubarb, leeks, and asparagus Herbs Parsley and fennel Cereals Maize only

Examples of the hairs found on the other edible plants in common use are appended in the illustrations, which have been made from actual specimens, either by microphotography or with the help of the camera lucida To those, of course who are familiar with the appearance of the various kinds of animal parasite met with in the fæces there is no likelihood of plant hairs being mistaken for parasites The illustrations are intended rather for those who have had no opportunity to become familiar with the appearance of the more uncommon animal parasites met with in the fæces

Reading

NOTES ON AN OUTBREAK OF CEREBRO-SPINAL MENINGITIS

AT H M TRAINING ESTABLISHMENT, SHOTLEY, AND THE METHOD OF TREATMENT ADOPTED—JULY 14TH TO AUGUST 14TH, 1916

BY THOS D HALAHAN, F R C S EDIN,
FLEET SURGEON R.N

THIS outbreak of 19 cases occurred between July 14th and August 14th this year It is somewhat remarkable because it occurred in the months when cerebro spinal meningitis cases usually decline and because it came on after a series of 9 isolated cases occurring at Shotley between November, 1915, and July, 1916 Of the 19 cases, 6 yielded proved cultures of the meningococcus from the cerebro-spinal fluid, 1 of the others gave a positive throat swab It is hard to escape the conclusion that the 13 cases in which the cerebro-spinal fluid did not yield the meningococcus should nevertheless be considered cases of cerebro-spinal meningitis for the following reasons

1 They are clinically indistinguishable from cerebro-spinal meningitis I am not depending only on my own judgment for this statement nor on that of Surgeon E J Tongue, who has attended all these cases with the greatest skill and pains It is also the opinion of Captain Sheffield Neave, R A.M C, who saw all the cases (and who has a very large experience of cerebro-spinal meningitis both clinically and bacteriologically), and of Major A M N Pringle, who saw the last 8 among which were the mildest of the cases Major Pringle has been for many years medical officer of health for Ipswich

2 They occurred with other proved cases of cerebro-spinal meningitis

3 Such cases in which the meningococcus is not recoverable have been frequently noted by many writers as occurring during outbreaks—Sophian, M Foster, Lundie, Thomas and Fleming, and Netter and Debré &c Sophian, however, considers that the meningococcus should be recognisable in about 85 per cent of the cases in certain outbreaks. It has also been stated that many mild cases have been overlooked and called influenza

4 Even in the 2 fatal cases the meningococcus was not recovered during life, though repeated lumbar punctures were done. It is not surprising, therefore, that it was not recovered from the others

5 Stiffness of the back and neck were present in all cases as also were Kernig's sign and headache Lumbar puncture showed increased pressure in all cases but 1, and a greatly increased quantity of fluid in all but 3, the average quantity being 63 c c. instead of the normal 10 c. Vomiting was present in 9 cases out of the 13 Many oth symptoms of meningitis were present in individual cases

A short summary of each of the 19 cases is given, t 6 proved bacteriologically are Cases 2, 4, 7, 9, 15, and 17

CASE 1 —Boy, 16, Dormitory 36, joined barracks Oct. 24t 1915 Admitted July 14th Temperature 103° F, nause headache 15th Stiffness of neck and back, Kernig's sig severe headache, photophobia, twitching of muscles, drows Lumbar puncture—increased pressure, 50 c c withdraw 16th Condition the same Lumbar puncture—increase pressure, 70 c c Patient improved rapidly, but complaine of weakness of right leg on August 1st August 23rd One month's leave, went to light duty on return Still h weakness of right leg

CASE 2 *Meningococcus found in cerebro-spinal fluid* —Boy 16, Dormitory 7, joined barracks July 12th, 1916 Admitte July 19th Temperature 102 4° F, malaise, papular ras on chest and arms 20th Headache, pain in neck, tem perature 103° 21st Same, Kernig's sign Lumbar punc ture—increased pressure, 50 c c, clear 22nd Same vomited twice Lumbar puncture—increased pressure 75 c c, very turbid 23rd Headache severe, retraction o head and neck, frequent vomiting, delirious Lumba puncture—increased pressure, 70 c c, turbid 24th Same Lumbar puncture—40 c c, turbid This patient afterward improved rapidly, and went on a month's leave on Sept 18th

CASE 3 —Boy, 15, Dormitory 7, joined barracks July 9th 1916 Admitted July 20th Temperature 103° F, malaise pains in neck 21st Temperature 102°, drowsy, Kernig's sign, stiffness of neck and back. Lumbar puncture—increased pressure, 70 c c, clear, lymphocytes in excess 22nd Same, herpes 23rd Headache severe, vomiting, photophobia, retraction of head and neck Lumbar puncture—increased pressure, 60 c c, turbid After this the patient improved, and was discharged to a month's leave on August 27th

CASE 4 *Meningococcus found in cerebro-spinal fluid*—Boy, 16, Dormitory 7, joined barracks July 6th, 1916 Admitted July 21st with headache, malaise, stiffness of neck, Kernig's sign Lumbar puncture—increased pressure, 70 c c, clear 22nd Drowsy, vomiting severe headache rigor, temperature 102° F Lumbar puncture—increased pressure, 60 c c, very turbid 24th Marked retraction. Lumbar puncture—35 c c, turbid, meningococcus found After this the patient improved and went on a month's leave on Sept 4th

CASE 5 —Boy, 15, Dormitory 7, joined barracks July 5th, 1916 Admitted July 21st Temperature 103 8° F, headache, pain in neck, Kernig's sign Lumbar puncture—increased pressure, 80 c c, clear, polymorphs in excess 22nd Temperature 103°, very drowsy, headache, retraction of neck, no vomiting Lumbar puncture—increased pressure, 75 c c, cloudy 23rd Very much better The patient rapidly improved up to August 8th, when he had recurrence, headache, pain in neck, dazed, knee-jerks exaggerated, Kernig's sign, signe de la nique, Brudzinski's sign Lumbar puncture—increased pressure, 65 c c, clear August 9th Vomiting, headache, herpes, stiffness of neck The patient improved again steadily, and was sent on a month's leave on Sept 4th

CASE 6 —Boy, 17 Dormitory 41, joined barracks Nov 10th, 1915 Admitted July 22nd with vomiting, headache, and nausea Temperature 100° F 23rd Kernig's sign pain and stiffness of neck and back Lumbar puncture—increased pressure 65 c c, clear, polymorphs in excess 24th Improving, headache, pain in neck and back up to August 11th Kernig's sign still present and headache frequent The patient was sent on a month's leave on Sept 3rd

CASE 7 *Meningococcus found in cerebro spinal fluid* —Boy, 15, Dormitory 12, joined barracks July 6th, 1916 Admitted July 22nd in a dazed condition unable to speak or hear, pain in neck, Kernig's sign 23rd Condition same, temperature 100·6° F Lumbar puncture—increased pressure 70 c c clear 24th Temperature 103°, still unable to speak vomiting, hæmaturia, severe headache, pain in back of neck Lumbar puncture—increased pressure, 65 c c, turbid After this the patient rapidly improved, and was sent on a month's leave on Sept 3rd

CASE 8 —Boy, 17, Dormitory 6, joined barracks May 19th 1916 Admitted July 22nd with sore-throat headache and nausea Temperature 103° F, vomiting some rash on chest, drowsy, stiffness of back, Kernig's sign Lumbar puncture—increased pressure, 70 c c., clear, cells in excess polymorphs and lymphocytes equal 23rd Vomiting head ache, pains in neck and back, retention of urine 24th Marked improvement, retention of urine continues After this the patient gradually improved, and was sent on leave on August 19th

CASE 9 *Meningococcus found in cerebro-spinal fluid* —Boy 16, Dormitory 29 joined barracks July 21st, 1916 Admitted July 24th with headache, stiffness of back, and Kernig's sign Lumbar puncture—increased pressure, 55 c c , clear 25th Frequent vomiting, headache severe, retraction of neck, drowsiness Lumbar puncture—increased pressure, 50 c c , turbid After this the patient steadily improved he had a papular rash, however, from August 6th to 8th Sent on a month's leave on Sept 4th.

CASE 10 —Boy, 15 Dormitory 28, joined barracks June 9th, 1916 Admitted July 24th with erythematous rash on trunk and limbs Temperature 99 8° F stiffness of neck and back, Kernig's sign Lumbar puncture—increased pressure, 75 c c , clear , lymphocytes in excess 25th Headache, vomiting, pains in neck and back 26th Same The patient improved rapidly, and was sent on a month's leave on August 24th

CASE 11 —Boy, 16, Dormitory 20, joined barracks June 9th, 1916 Admitted July 27th with headache, pains in neck, and Kernig s sign Lumbar puncture—increased pressure 50 c c , clear 28th Headache, vomiting, pain in back of neck. This was a mild case and the patient improved rapidly He was sent on a month's leave on August 27th

CASE 12 —Boy, 16, Dormitory 28, joined barracks June 9th, 1916 Admitted July 27th with pains in legs, stiffness of neck and back, and Kernig's sign. 28th Stiffness and pain in back continued, reflexes exaggerated This was a very mild case Lumbar puncture—pressure normal, clear The meningococcus was recovered from a throat swab

CASE 13 —Boy, 15, Dormitory 13, joined barracks May 10th, 1916 Admitted July 27th with headache, a temperature of 100° F , stiffness of neck and back and Kernig's sign 28th Condition same Lumbar puncture on 29th, pressure normal, clear 30th Vomited several times This was another very mild case Duty on August 29th

CASE 14 —Boy 17, Dormitory 28, joined barracks June 23rd, 1916 Admitted July 28th with stiffness of neck and back and Kernig's sign Lumbar puncture on 29th showed increased pressure fluid flocculent The patient improved rapidly, and was sent to duty on August 30th

CASE 15 *Meningococcus found in cerebro-spinal fluid* —Boy, 16, *Ganges* ship Admitted July 29th with mild sore throat, symptoms of cerebro-spinal meningitis only appeared on August 2nd, pain in back of neck, Kernig's sign, nausea and vomiting Lumbar puncture—increased pressure, 75 c c slightly turbid August 3rd Frequent vomiting, severe headache, pains in back of neck, temperature 101 8° F 4th Very restless severe headache and backache, retention of urine, retraction of head Lumbar puncture—increased pressure, 90 c c , yellow The patient died next day Meningococcus grown from post-mortem specimen of cerebro-spinal fluid but not in life

CASE 16 —Boy 16 Dormitory 14 joined barracks July 6th, 1916 Admitted August 4th with temperature of 102 4° F headache stiffness of neck and back marked Kernig's sign, nausea Lumbar puncture—pressure normal, 35 c c , clear 5th Severe backache headache vomiting 9th Very much better The patient improved regularly, and was sent on a month's leave on Sept 4th

CASE 17 *Meningococcus found in cerebro-spinal fluid post mortem* —Boy 16 Dormitory 31 joined barracks March 14th, 1916 Admitted June 22nd with malaise and a temperature of 101 2° F No definite signs of disease could be recognised The temperature ran an irregular course and at times the patient's stool suggested typhoid Blood negative to Widal's reaction Cerebro-spinal meningitis symptoms first appeared on August 9th—pain and stiffness of neck and back, tremulous tongue severe headache Kernig's sign, vomiting Lumbar puncture—increased pressure, 65 c c., clear 11th Kernig's sign Brudzinski's sign Macewen's sign signe de la nique, and Babinski's sign all present Lumbar puncture—increased pressure, 47 c c , straw-coloured 13th Much pain headache, backache, temperature 101° Lumbar puncture—increased pressure, 50 c c opalescent 15th Retention of urine in addition to other symptoms Died on the 21st The meningococcus was recovered from a post mortem specimen, but not in life

CASE 18 —Boy 16 Dormitory 21 joined barracks May 12th, 1916 Admitted August 13th with a temperature of 102 8° F , back and neck very stiff and painful, knee jerk absent slight papular rash on trunk Kernig s sign Brudzinski s sign, Macewen s sign and signe de la nique all present Lumbar puncture—increased pressure 65 c c clear 14th Condition same vomited several times Special signs present as before 15th Much improved 24th Patient vomited also a red papular rash on limbs Further vomiting on August 31st and Sept 1st On Sept 10 h the patient went on a month s leave

CASE 19 —Boy, 17 Dormitory 41 joined barracks August 11th 1916 Admitted August 14th (three days after joining from *Powerful*) with a temperature of 104° F , sore throat, and headache 15th Intense pain at back of neck and in back, severe headache knee reflex absent, Kernig's sign Lumbar puncture—increased pressure, 56 c c clear 16th Great improvement, which continued next day After this the patient made an excellent recovery He was sent on a month's leave on Sept 9th

All these cases were treated by the advice of Captain Sheffield Neave on similar lines early puncture, free washing out of the spinal canal with ½ per cent solution of carbolic in normal saline, and then injection of Pasteur serum, prepared from Gordon's strains into the canal

I wish to draw attention to the admirable results obtained in these 19 cases by the above method, though, of course, one cannot generalise from so small a number Out of 19 cases only 2 were fatal

Each lumbar puncture shown in the summary of cases was followed by the washing out and injection. The last 2 cases were injected with Lister Institute serum prepared from Gordon s strains , the dose of this is 30 c c., as against 10 c c in the other

As to the origin of the outbreak it seems scarcely necessary to look beyond Shotley The dormitories affected were 11 in number, mostly widely apart, there are 36 dormitories in Shotley One case came from *Ganges* ship

Medical Societies.

ROYAL SOCIETY OF MEDICINE

SECTION OF ELECTRO THERAPEUTICS

Pharyngeal Pouches

AN ordinary meeting of this section was held on Dec 15th, Dr G HARRISON ORTON, the President, being in the chair

Captain N S FINZI read a paper supplemented by a series of skiagrams, on "Pharyngeal Pouches" He first discussed the situation and origins of such pouches Usually by the time the radiographer saw a pharyngeal pouch it had reached an advanced stage, sometimes so advanced that it obstructed the œsophagus by pressing upon the contents His present purpose was to treat of the subject of diagnosis from the X ray appearances He found that the best substance to give the patient to eat with the object of facilitating the radiographic representation was a semi solid paste of bismuth oxy chloride The consistency should be such that it did not flow back immediately to its natural level Such a paste was found to adhere to the pharynx for an appreciable time He regarded as very important the examination of cases of suspected pouch by the fluorescent screen , otherwise much difficulty was experienced in differentiating them from malignant strictures The diagnostic feature to watch for was the way in which the bismuth that had been given left the pouch If the condition were a pharyngeal pouch, the bismuth could be seen leaving the mouth of the pouch, and passing thence straight into the œsophagus Sometimes it was exuded in that way by the contraction of the muscles of the throat In the conditions with which such pouches were liable to be confused—i e , carcinomatous or fibrous strictures—the bismuth was arrested and later it could be seen leaving the centre or the lower end of the dilated œsophagus He showed a number of skiagrams to illustrate the points Sometimes a pouch became inflamed, and an indentation formed at the lower end in consequence of adhesions having occurred One case in which the diagnosis was very obscure was that of a very old and weak patient in whom some of the bismuth given passed into the trachea and into one bronchus It was natural to suppose there was a growth, which was causing complete obstruction and that some part of the bismuth was escaping through a sinus into the trachea It proved, however to be a pouch He found that a true lateral view gave a far better idea of the condition in these pouch cases than did any other In the case of a very large pouch it was well to place the X ray tube some distance off, so as to have parallel rays impinging and to correct distortion. If the pouch were somewhat low and the patient was a tractable one he should be bidden to commence to swallow and try to retain the larynx in that higher

position for a brief space One patient with a large pouch had been operated upon three years previously by gastrostomy because he was supposed to have carcinoma Had he been examined with the œsophagoscope the mistake could scarcely have been made When the pouch had been discovered it was removed After viewing these cases with the screen his practice was to take a plate also, as the details in the latter assisted in the diagnosis His patients were always examined in the standing posture He did not think spasmodic stricture came into the diagnostic problem, because it was unlikely to occur in this situation Fortunately, a fibrous stricture was rare in this region, as its diagnosis from a pouch might be very difficult Pharyngeal pouches were supposed to be very rare, but the eight cases, pictures of which he had shown, occurred in his private practice in the course of five and a half years Usually the presence of these pouches was not suspected until they became large enough to cause symptoms

Dr DUNDAS GRANT, Dr STANLEY MELVILLE, Dr W H KELSON, and Dr IRWIN MOORE discussed the paper, and Captain FINZI replied.

Dr R W A SALMOND gave a skiagraphic demonstration of the changes observed in osteomyelitis of different origins, basing his contribution upon three essentially different cases of osteomyelitis in the long bones The X ray pictures were taken at intervals over a course of years, and afforded an instructive demonstration of the bone destruction and the subsequent laying down of new bony tissue

HUNTERIAN SOCIETY —A meeting of this society was held on Dec 13th, Dr Andrew S Currie, the President, being in the chair —Dr Hingston Fox read a paper on the Use of Antimony in Ancient and Modern Medicine After a brief allusion to Hebrew and Greek records Dr Fox said that the drug was long applied as an astringent and caustic Its internal use seems to date from the end of the sixteenth century, when the famous "Currus Triumphalis Antimonii" extolled it as a remedy for all the ills of the body The drug was as vehemently denounced by the Galenists, but during the next two centuries it was in large employ Fothergill combined antimony with aloes in his once well known pill In Plummer's pill it was mixed with calomel and guaiacum By Cullen's time antimony was known as an 'alterative" Soon after this the French school introduced the remedy in the treatment of inflammations especially in pneumonia. It displaced blood letting and gave much better results Trousseau was its latest exponent but T K Chalmers and others showed that pneumonia recovered more readily without antimony, and so this drug was gradually disused and has fallen into neglect Lately its chemical affinity to arsenic has led to the use of antimony in trypanosomiasis, kala azar, syphilis, and yaws with good results A case of the first-named disease was related It was suggested that the alterative properties, on which the old physicians laid stress were in reality based upon a control of chronic affections —Amongst those who discussed the paper were Dr C Couper Cripps, who pointed out that many years ago he was led to use antimony wine with an alkali in cases of lichen planus —Dr F Parkes Weber dwelt upon the value of an emetic in respiratory diseases when given at the commencement of treatment, which clears the bronchi of accumulated mucus —Dr Thomas Dutton said that he had used antimony in pneumonia for a generation and had so much confidence in it that he seldom required other drugs It was a great pity, he thought, that antimony was not more used in general medicine Its value in pneumonia and chronic bronchitis was also upheld by the President

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY —A meeting of this society was held on Dec 8th at Leeds General Infirmary, Dr T Churton being in the chair —A communication on Cerebro-spinal Meningitis was made by Major C W Vining In discussing the symptoms of the disease cases were cited illustrating the remarkable variation in the intensity of the infection and emphasis was laid upon the possibility of cases being missed unless the fact that the disease could occur in a mild form was kept in mind The onset in Major Vining's cases was consistently sudden, although in about half of them it was preceded by indefinite symptoms, such as catarrh of the respiratory passages intermittent headache or sensation of chilliness The symptoms of the developed condition were fairly consistent practically all experiencing acute headache and changed mentality while vomiting at the onset was common. A purpuric rash was the exception rather than the rule, and when it had occurred it appeared early and in the more malignant type of case. In discussing the treatment of the cases, the importance of frequent lumbar punctures and the administration of antimeningococcal serum was insisted upon Referring to the bacteriological side of the subject, it was pointed out that quite a number of undoubted cases failed to show the meningococcus in smear preparations of the cerebro-spinal fluid, and even on cultivation growth was sometimes not obtained. If, however, the fluid was first incubated by itself or in conjunction with serum broth, a growth was nearly always obtained on plating the incubated material. The importance of the examination of contacts and the isolation of the carrier was discussed, and in connexion with this it was pointed out that quite a number of people amongst the general population harboured a Gram negative diplococcus in the naso-pharynx which was indistinguishable by all the present known tests from the meningococcus Present evidence seemed to show that cases of the disease, at any rate in its endemic form, developed amongst the carrier population, and Major Vining brought forward information to show that meteorological conditions appeared to be related to the occurrence of cases He showed that a high rainfall consistently preceded cases, and was usually accompanied by a low rapidly fluctuating barometer, a series of high relative humidities, and low temperature Before the paper Major Vining demonstrated the agglutination test and showed a series of plate cultures from cases and from positive contacts —A number of cases and specimens were also shown

HARVEIAN SOCIETY OF LONDON —A meeting of this society was held at the Stafford Rooms, Tichborne-street, W, on Dec 7th Dr Edmund Cautley, the President, being in the chair —Dr B H Spilsbury read a communication entitled "Sudden Death," defining the scope of the paper as the consideration of those forms of death which occur in apparently normal persons or in those not thought to be seriously ill, thus necessitating coroners' inquiries Selecting especially the more difficult and obscure cases of sudden death he gave examples due to diseases of the circulatory respiratory, and nervous systems He then illustrated deaths from shock by several examples, and finally analysed deaths from anæsthetics according to (1) the anæsthetic and (2) the morbid process, the latter group being subdivided according to the presence or absence of status lymphaticus

LIVERPOOL MEDICAL INSTITUTION —A meeting of this society was held on Dec 14th, Major C J Macalister being in the chair —Major J M Beattie read a note on Hypochlorous Acid as a Disinfectant for the Throat &c. The solution may be prepared by the electrolysis of a 3 per cent saline solution—a current of 1 ampère running for an hour and a half between carbon poles immersed in the liquid producing a suitable strength He exhibited a simple electrical apparatus by which the solution could be kept in motion during the process of electrolysis He showed by an analysis of the cases treated by this disinfectant, which should in all cases be freshly prepared, that the throat in cases of diphtheria was free from infection seven to ten days earlier than when the ordinary disinfectants were used The solution may be used with a spray or applied to the throat with a swab —Mr T C Litler Jones contributed an interesting note on Gas Gangrene, illustrated by colour photographs and sketches and related his experiences of the treatment of the disease in those under his care in the Liverpool Merchants Hospital in France to which he had recently been attached He exhibited several radiographs which showed clearly the collections of gas in and round the muscles In discussing the treatment of the condition he emphasised the importance of prompt and drastic surgical interference by incision and in many cases by amputation

LONDON DERMATOLOGICAL SOCIETY —A meeting of the above society was held at St John's Hospital for Diseases of the Skin on Dec. 19th, Dr W Knowsley Sibley the President being in the chair —Clinical cases were shown by Dr Morgan Dockrell, Mr Christopher R Kempster and Captain W Griffith The President brought forward a series of seven cases of Alopecia three boys and four women, the majority of which were "totalis" form originally, a free growth of young hair was observed in all the cases which had been treated by small doses of X rays and ionisation

Reviews and Notices of Books.

Diseases of Children

By A DINGWALL FORDYCE, M.D Edin, F R C P Edin, Lecturer on Diseases of Children, School of Medicine of the Royal Colleges, Edinburgh London A. and C Black, Limited. 1916 Pp 483 Price 10s. 6d

IN this volume the author has attempted to provide for the use of students and practitioners a small but complete text-book of pædiatrics written on distinctly novel lines Nearly all text-books on the diseases of children with which we are acquainted have been arranged in accordance with certain conventional and time honoured traditions—that is to say, certain sections are devoted to diseases of the various systems the digestive, the respiratory, the circulatory, and so on, while others deal with disorder of metabolism, nutrition and growth, and others with the infective processes In this new work Dr Fordyce has adopted the plan of arranging all the subject-matter dealt with on a systematic basis This method appears to us to have involved the author in a great number of very difficult situations, and we cannot convince ourselves that the sacrifices which he has made to adhere to this plan have afforded any commensurate compensations in respect to uniformity or consistency of design.

The author has respected tradition in so far as the introductory chapters are concerned Thus in common with other text-books we find a chapter on the healthy child, the examination of the sick child, the diseases of the new-born, and so on These chapters are followed by one on congenital syphilis, which appears as difficult to consign to its proper niche in the system as tuberculosis, which for some reason or other is interpolated between a chapter on diseases of the alimentary system and another on diseases of the ductless glands, which, by the bye, covers diseases of metabolism also The exact location of rheumatism appears also to have presented difficulties, for along with chorea it has a chapter to itself sandwiched in between one on diseases of the circulatory system and another on acquired heart disease To give a few other instances of the dilemmas into which this systematic method leads the author, we may mention that mumps is forced into the chapter on diseases of the mouth and throat, measles into that on diseases of the respiratory system, and enteric into that on diseases of the alimentary system

We are inclined to think that the author's evident penchant for the *reductio ad simplissimum* will be better appreciated by the student who is learning than by the practitioner who meets with the difficulties and realities of disease in the living subject When reading certain of the chapters which deal with some of the most difficult problems in medicine one cannot help being struck with the simplicity and the straightforwardness of the solutions which are provided This method of reduction to the simplest possible terms finds one of its most striking examples in the chapter on the artificial feeding of infants With certain judicious reservations the author relieves this subject of most of its difficulties by submitting certain uncomplicated formulas which he assures us give the best results when put into practice These formulas are as follows for the first month of life the infant is to be fed on a mixture of one part of milk and two parts of water for the third month of life the strength is to be in the proportion of one part of milk and one part of water, and for the sixth month two parts of milk and one part of water, and so on for the remaining months When we add that these mixtures may be reinforced with a small quantity of cream and sugar we know all that there is to be learned from these pages with respect to the compounding of food for the average healthy infant This method appears to us to be altogether too simple, it is the method which towards the end of the last century gave the manufacturer of patent foods his opportunity and the faddist his occasion to elaborate strange and weird practices

Apart from these serious objections on the ground of arrangement and on the ground of too much simplification we have only praise for Dr Fordyce's new book It is certainly accurate extremely easy to read and very complete It is profusely illustrated and printed with excellent head lines which catch the eye and emphasise the important points

Growth in Length Embryological Essays

By RICHARD ASSHETON, M A., Sc D, F R S, Lecturer in Biology at Guy's Hospital, Lecturer in Embryology at the Imperial College, and Lecturer in Animal Embryology in the University of Cambridge With 42 illustrations Cambridge At the University Press 1916 Pp 104 Price 2s 6d net

To review a posthumous work of Richard Assheton is a melancholy duty To those who knew him personally his death has brought the loss of one of the gentlest and most lovable of gentlemen to science the loss has been of the most thorough and painstaking of embryologists During his lifetime Assheton published many papers each one distinguished by its thoroughness and accuracy, and we are glad to see that this volume contains a complete bibliography of his contributions to science Two quite distinct portions are contained in the book, and only the first deals, strictly speaking, with growth in length, the second being a reprint of his well known criticism of Driesch's conception of entelechy The first portion of the volume contains the subject matter of three advanced zoological lectures delivered as part of the curriculum of London University at Guy's Hospital in 1913 It is in this part that most interest and novelty lies, and the thanks of all workers in embryology are due to Mrs Assheton for publishing the lecture notes arranged by her husband

In the preparation of the manuscript Professor Stanley Gardiner and Professor J P Hill have given their assistance, and the result is an eminently authoritative account of the early stages of development of a wide series of animal types The main conclusion of the work—that these early stages give no indication whatever for imagining that chordates are derived from highly organised invertebrates—is based upon the study of the relation of the growing body axis to the plane of the gastrula in chordates and invertebrates respectively Not only this, but there is also the very definite finding that the differences displayed are so great that there is no alternative to believing that the chordates arose as far back as the cœlenterates or their immediate descendants

The volume is a record of a life's work of accurate and painstaking observation

LIBRARY TABLE

Clinical Methods A Guide to the Practical Study of Medicine By ROBERT HUTCHISON, M D Edin, F R C P Lond, and HARRY RAINY, M D Edin F R C P Edin Sixth edition London Cassell and Co, Limited 1916 Pp 664 Price 10s 6d net —The sixth edition of this indispensable manual has only increased in size by eight pages, but reference to the matter shows that a thorough revision has taken place, which has naturally resulted in many changes in the chapter on clinical bacteriology A paragraph is inserted on modern methods of examination of the myocardium, and the nomenclature of the B N A has been given in brackets after the old anatomical names Altogether the book merits the large circulation which it has achieved

Help for the Deaf What Lip-reading is By E F BOULTBEE London Hodder and Stoughton 1916 Pp 196 Price 2s 6d —Miss Boultbee's book is a welcome addition to the limited literature dealing with lip-reading and with the benefits brought by it both to the adult deaf and to those who have lost their hearing after the acquisition of language Miss Boultbee not only writes as an experienced and sympathetic teacher, but as one who has retained all her original enthusiasm for her work and has in no wise neglected her ideal that of placing the deaf person as far as possible on a level with the hearing Lip-reading as she points out may prove of inestimable value mentally, morally and physically, to the person who masters the art She explains how it develops alertness closeness of observation and concentration among the deaf, helping them to hold at bay a tendency to apathy and suspicion, and rousing them from a form of self absorption to which they are naturally liable and which so often leads to definite ill health She does not attempt to disguise the difficulty either of teaching or acquiring the accomplishment of lip-reading—the task undertaken by both tutor and disciple is a hard one, but she shows how the deaf people who master the art acquire also cheerfulness and tact in the relations of life which go far to enable them to take an ordinary place

in society A section of the book sets out the phonetic sounds of the alphabet, as distinguished from the "names" of the letters, with the positions assumed by the tongue and lips in the utterance of the sounds Another section gives the hearing reader some idea of the difficulty experienced by deaf children in the comprehension of idiomatic language, a point that needs to be grasped by people who deal with those who are short of a valuable sense The serious parts of the book are interspersed with anecdotes which, whilst making it easy and attractive reading, give courage to the deaf reader, and should enlighten hearing friends as to their difficulties Miss Boultbee's book does not quite replace Mr Nitchie's book on lip reading, which goes further in many directions, but we cordially recommend it to those for whom it has been written

Appleton's Medical Dictionary Edited by SMITH ELY JELLIFFE, M D , assisted by CAROLINE WORMELEY LATIMER, M D London and New York D Appleton and Co 1916 Pp 945 Price 15*s* net —The editor of this handsome and convenient volume speaks of language as the chief tool of the intellect, and offers his dictionary as an instrument for a service reaching far beyond itself to the minds which are to supply the motive and directing force He is himself a professor of diseases of the mind and has had the assistance as special contributing editors of University teachers in anatomy, physiology chemistry, pharmacology, medicine, gynæcology, and pathology The result of this collaboration is a dictionary complete in medical and ancillary terms, with accurate definitions and formulæ, and with full names and dates to authors An appendix of 50 pages contains notes on analyses of body fluids, dietaries, the feeding of babies, common poisons, and other useful matter, while many tables are incorporated in the text During six months' use we have noticed a few slips of a minor character, but the volume is likely to compete with success in the struggle for existence among medical dictionaries

1 *Mysteries of Life A Book for Boys and Girls* By STANLEY DE BRATH, M Inst C E London George Allen and Unwin, Limited 1915 Pp 260 Price 4*s* 6*d* net — 2 *The World's Wonder Stories for Boys and Girls* By ADAM GOWANS WHYTE. London Watts and Co 1916 Pp 270 Price 6*s* net —Mr de Brath, who was lately head master of Preston House Preparatory School at East Grinstead, has no lower aim than to give to boys and girls a working perception of the presence of God in nature and in themselves He asks the questions What? How? and Why?, and answers them by describing the history of the earth, the mysteries of sex, pain, and the kingdom of heaven, Most of what he writes is far above the head of any ordinary child, and much of it deals freely with the sad and sordid things of life But Mr de Brath has the mystic's mind and a gentle touch, and youthful readers will not be harmed by his frankness, while teachers will find material for many a useful lesson — "The World's Wonder Stories for Boys and Girls" is another book, and an excellent one, to arm the older person against the child's questions How? Why? When? and Where? It introduces the child to astronomy, biology, the origins of religion and morality in a way which he can readily apprehend A number of excellent illustrations have been borrowed from many sources and the cover is embellished with an appropriate coloured design by H S Tuke, R A.

Outlines of Medical Jurisprudence with Special Treatment of Toxicology and Insanity By RAMES CHANDRA RAY, L M S , Lecturer on Forensic Medicine, College of Physicians and Surgeons of Bengal, Calcutta Third edition. Calcutta The Hare Pharmacy 1916 Pp 494 Price 4 rupees —The author has added 40 pages to his work, embodying four years of experience, since the last edition We have already remarked on his genius for compression, and although there are a few verbal misprints there is hardly an unnecessary word in the whole book. The "mass of useful tables," as the author calls it, in the appendix has been added to

JOURNALS

Quarterly Journal of Experimental Physiology Editors E A SCHÄFER W D HALLIBURTON C S SHERRINGTON E H STARLING, and A D WALLER. Vol X. No 1 London Charles Griffin and Co , Limited 1916 Pp 1-95 Price 7*s* 6*d* —The whole of this number is occupied with a combined physiological and psychological study of Cutaneous Sensation after Nerve-division, by Edwin G Boring, describing work done in Cornell University, and illustrated by 98 figures in the text and a plate Trotter and Davies supplemented Head's work on the changes in the sensibility of the skin upon the division and suture of a cutaneous nerve, and the author has followed with intensive work on the lines of Trotter and Davies He insists as an important factor on the introspective competence of the subject The work is the product of two laboratories—physiological and psychological. The cutaneous sensations—sensibility of the hairs, two point discrimination and localisation over the greater part of the volar surface of the left forearm—were tested before the nerve selected for division, the anterior branch of the internal cutaneous of the left arm, was divided For 15 months preceding the operation the subject devoted from three to eight hours a week to preliminary work, during which he was practised in the discrimination of two points, and in localisation, in order to obtain quantitative norms of the area investigated Contact, penetrating and dull pressure, granular pressure and sharpness were investigated and the conclusion is reached that there are four indisputable qualities that appear upon mechanical stimulation of the skin, tickle contact, penetrating pressure, dull pressure, and sharpness the usual but less descriptive terms being contact cutaneous pressure subcutaneous or deep pressure, and pain. Deep pressure and cutaneous pressure are introspectively distinguishable Warmth and cold did not present the same introspective difficulties as did pressure and pain The means employed for the study of each cutaneous sensation are fully described in the text Section of the nerve on the author himself was made on Jan 10th, 1913, at a definite position, and thereafter pressure, pain, cold, warmth, distribution of sensibility, return of sensibility, localisation, and two point discrimination were all investigated quantitatively A careful study of the paper will well repay the student of neurology

The Philippine Journal of Science, Section B, Tropical Medicine Vol. XI No 3 —Taking the view that disease is not infrequently acquired from infection while bathing, and that it is of paramount importance that water used for bathing should be free from infectious material, Mr Charles E Gabel, of the Biological Laboratory, Bureau of Science, Manila, instituted a series of bacteriological examinations of certain swimming pools in that city, and has embodied his observations in a paper in this number of the *Journal* Bathers who fail to cleanse themselves properly before entering such a pool, or those who are chronic carriers or disseminators of pathogenic organisms, may contaminate the water, and thus infect other bathers Exaggerated accounts of public bath infections have caused many persons to look with aversion upon water that has been in contact with other people Certain experiments were carried out by Mr Gabel, and as a general result he states that when no disinfectant was added there was a steady increase in the number of bacteria in the swimming pools This increase was exceedingly high on the last day of the week during which the water had been used. When disinfectants were added the bacterial curve was lowered and often became more irregular Copper sulphate applied at the beginning of the week permitted an increase throughout the period, sometimes, however, a slight reduction occurred Calcium hypochlorite applied once a week showed good effects at first but permitted an increase of bacteria towards the end of the week. A daily addition amounting to 0 25 part of available chlorine per million parts permitted a considerable increase of bacteria, while 0 5 part gave the best results When the comparative costs and disinfecting power are considered, antiformin and copper sulphate are not so valuable as calcium hypochlorite The latter when added daily in amount equivalent to 0 5 part chlorine per million parts water, is recommended for the disinfection of these swimming pools, as it is the best and most economical means of keeping the number of intestinal and other bacteria within safe limits throughout the week during which the water is in use.—The second of the two papers comprised in this number of the *Journal* is by Dr F H Ruediger who continues his studies on the Wassermann reaction with glycerinated human serum His new experiments corroborate generally his previous conclusion that chemically pure glycerine is a suitable preservative for human serum which is intended to be tested by the Wassermann reaction

Guaiacol in a New Form

UNDOUBTEDLY the best way to administer Guaiacol is in an emulsified form Combined with Liquid Paraffin it proves of unique value in cases of *Phthisis, Asthma,* and other Disorders in which Creosote is indicated The emulsion issued under the "Semprolin" Brand contains the purest RUSSIAN Liquid Paraffin of the correct viscosity and specific gravity for internal use The Guaiacol used is of exceptional purity

"Semprolin" Emulsion with Guaiacol

Guaiacol Carbonate (equivalent of)	gr 10
"Semprolin" Russian Liquid Paraffin	50%
in each tablespoonful	

ALSO SUPPLIED WITH AN ADDITION OF 10 GRS OF POTASSIUM IODIDE.

From all Chemists in 8-oz and 16-oz Bottles Specimen free on application

Wm. BROWNING & CO., Manufacturing and Export Chemists,
Albert Works, Park Street, LONDON, N.W.

Telephone—HAMPSTEAD 4046 *Telegrams*— 'SEMPROLIN, NORWEST, LONDON"

A Guarantee!

Cadbury's Cocoa

is absolutely pure and prepared only from the finest selected cocoa

(Cadbury, Bournville)

GALE'S SPECIALITIES

ELIXIR CRESOLIS C. HEROIN CO.

An excellent and palatable combination of Elixir Pini Cresolat with Glycerophosphates, Heroin, Demulcents &c

A most useful preparation for Winter and Phthisical Cough"

LINCTUS TUSSI

A cheap efficacious combination of Opium, Ipecacuanha Squill &c

SYRUP. CREOSOTI LACTOPHOSPH. CO.

An extremely useful preparation in ADVANCED PHTHISIS It relieves the cough reduces night sweats, and tends to improve the appetite

"ENTRAPURO" (REGD)

An agreeable concentrated antiseptic for MOUTH WASH GARGLE &c., &c

An ideal preparation for the Hygiene of the Mouth."

Price List and Pill Catalogue on application

GALE & COMPY., LTD.,
WHOLESALE CHEMISTS AND DRUGGISTS,
(Established 1 8)
15, BOUVERIE ST, FLEET ST, LONDON, E C
Telegraphic Address 'DREADNOUGHT LONDON"
Telephone 8 8 HOLBORN

The Combined Treatment of
SYPHILIS

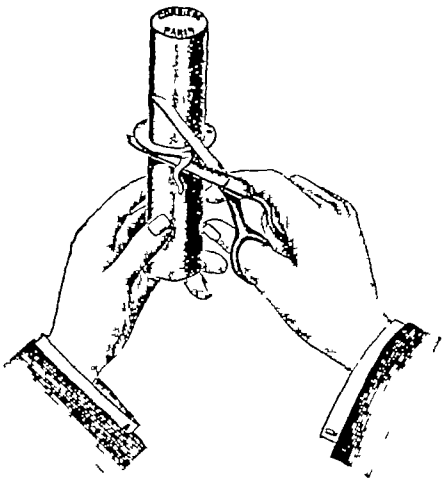
SUPSALVS

Stable Suppositories containing 0 10 grm of 606 for rectal administration (also made with 0 03 gr dose for children) in box containing 6

Simple in Use
Rapid and Effective Absorption

Arsenic being found in the blood and urine 12 hours after administration

Produce no Undesirable Effects



Supsalvs each in special Metallic Case for Hot Climates

At the International Congress of Medicine Ehrlich stated that the biochemical action of "606" on spirochætes is not direct but indirect a third factor found in the body fluids being necessary

This success is explained by the well known experiment of Levaditi: If living treponemas be placed in a solution of Arsenobenzol (Ehrlich s 606) they continue to live in it But if a trace of extract of liver be added to the mixture the treponemas are destroyed

'If 606 has to be taken up and transformed by the liver in order to become toxic to the treponema there is no better mode of absorption of the drug than by way of the intestine since all the veins of the intestines join the portal vein. If this be the case no route could be more indirect and more unsatisfactory for active treatment than one that is not intestinal or not intravenous (i e pre-hepatic) since some of the drug must necessarily become fixed everywhere before the passage through the liver has activated it —Dr Sabouraud, La Clinique (13-4 1913)

As a result of numerous clinical experiments Dr Bagrov of Moscow has arrived at the same conclusion and recommends the rectal method of administration of 606

MERSALV

For Mercurial Inunction, in connection with Supsalv Treatment

A non greasy preparation containing 10% of Metallic Mercury in the highest form of subdivision, and unlike most mercurial ointments Mersalv contains no organic fats or oils It is of a white creamy consistency pleasant odour and cleanly in use

(Supplied in Special Stoppered Bottles for Hot Climates.)

A Perfect ***COCAINE SUBSTITUTE***
of Low Toxicity.

NEOCAINE-SURRENINE

Neocaine is a synthetic product of French manufacture, containing no alkaloids

Analgesic power, duration and rapidity of action equal to Cocaine

Toxicity less than one sixth

Therapeutic effects identical with Cocaine (excepting as an exhilarant) for

Surgical or Dental Local Anæsthetics, Lozenges, Snuffs, Ointments, &c

Composition of Neocaine-Surrenine
Pure Neocaine 5 c g
Acid Borate of Adrenalin (Takamine) 0 1 m g
Neocaine pure alone can be supplied

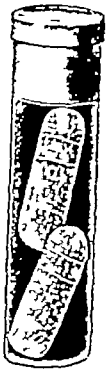


FIG 1

Neocaine-Surrenine can be obtained in
* 5 c.g doses of readily soluble powder each in sterilised double capsule easily pulled apart (5 c g in 5 c.c. of liquid gives a 1 % solution)
* Tube containing 20, 5 c.g doses of the powder (Fig 1)
Tube containing 5 gram of powder
" ½ oz "
" 1 oz "

* The capsules are not suitable for export to hot humid climates for this purpose powder in glass tubes or ready made solution in ampoules or flasks is recommended

Ready prepared sterilised solution in Ampoules

ENDOCRISINES

Complete Extracts of Internal Secretory Glands

Prepared at freezing point and *in vacuo*

Owing to the non chemical treatment of the glands the Extracts retain their full activity and desiccation by heat is also avoided

THYROIDINE **OVARINE** (Corpus luteum) **ORCHITINE** (Testicle)
HYPOPHYSIS (Pituitary) **SUPRARENAL**
KIDNEY **MAMMA** **LIVER**
SPLEEN **THYMUS**

(Full indications for these extracts are contained in the literature)

BILÉYL

A Pure and Stable Extract of Fresh Ox-gall in the Form of Keratin-coated Globules

These dissolve in the intestine and then become active.

INDICATIONS
As a corrective in Intestinal Putrefaction
Stimulating action on the Biliary Secretion
For Icterus, Biliary Calculus or Colic
Hereditary Simple Cholæmia Entero-colitis of the muco membranous type with Constipation

Further literature on application to the Sole Agents for the British Empire Colonies, and Dominions—
THE ANGLO FRENCH DRUG CO LTD (late M BRESILLON & Co), GAMAGE BUILDING, HOLBORN LONDON E C
Telegrams "AMPSALVAS LONDON" Telephone HOLBORN 1311

THE LANCET.

LONDON SATURDAY, DECEMBER 30 1916

THE ANNUS MEDICUS 1916

MEDICINE

DURING the past year the attention of physicians has mainly been directed to matters associated with the health of the troops. Thanks to the vast and continuous efforts of the officers of the Royal Army Medical Corps the amount of preventable disease has been reduced to a minimum and the effects of the campaign on the nervous system have been productive of more research and observation than have the infectious fevers

Dysentery

When the evacuation of Gallipoli was accomplished the number of cases of dysentery in the Expeditionary Force rapidly became less, consequently the opportunity of studying the acute cases was lost, but doubtless much remains for investigation in following up the more chronic forms

In a paper delivered before the Royal Society of Medicine Lieutenant-Colonel Sir RONALD ROSS recorded the results which have been obtained in the treatment of dysentery, especially in regard to the amœbic form He strongly urged as a routine treatment the hypodermic injection of emetine hydrochloride and supported the orders of the Principal Director of the Medical Services of the Mediterranean Forces that it should be used in every case of suspicious dysentery without waiting for a definite diagnosis as to the exact nature of the case He pointed out that there can be no doubt that the sooner treatment is commenced the more it is likely to succeed Once the amœbæ have begun their destructive trenching and mining under the mucosa of the intestine there is apparently in many cases no natural limit to their activities and they will soon end by removing up to 90 per cent or more of the surface Every hour, therefore, counts at the beginning of the infection, and the delay of a few weeks often means almost irreparable ruin to the colon, even if the patient survives The opinion was also expressed that unless there was very strong reason for continuing emetine it should be remitted at least for a time after about ten days

Attention has been drawn to the treatment of amœbic dysentery with emetine bismuth iodide and considerable success has been claimed The amœbæ disappeared rapidly as did also the blood and mucus together with the pain and other symptoms But as Dr G C LOW and Mr C DOBELL pointed out whether or not a complete sterilisation has been effected can only be determined by examinations conducted over a long period of time These observers also found that this compound of emetine produces much more disagreeable symptoms than emetine hydrochloride given by the needle Some of the patients suffered so much from vomiting and diarrhœa that the treatment had to be discontinued

Typhoid Fever

Captain F H WHITTINGTON R A M C (T) published a report on the use of stock vaccine in infection by the *Bacillus typhosus* with an analysis of 230 cases One half of these were on vaccine treatment and the other half were the selected controls The results were not encouraging It would appear (*a*) that it is in just those cases in which the physician so much requires help that vaccine is disappointing (*b*) that vaccine neither shortens the fever nor reduces the number of complications in even that class of case which is likely to do well, and (*c*) that there is a decided suspicion that vaccine increases the incidence of hæmorrhage Naturally the conclusion arrived at in this report is that the use of a stock vaccine in typhoid cannot be recommended as a routine treatment

In inoculated individuals the diagnosis of the enteric fevers so infrequently gives rise to difficulties Several investigations have been carried out on this subject Major G DREYER R.A.M C, and Captain E W AINLEY WALKER O T C, furnished a report to the Medical Research Committee in which some interesting results were mentioned in regard to the agglutinin reaction In a certain number even of the mildest cases of these infections the rise and subsequent fall in the agglutinin titre are so definite that the diagnosis could never be in doubt But in other cases the rise and fall of the curve are much less marked, and differences of opinion may exist as to whether the case is of active infection or not In order to assist in the elucidation of such cases these observers formulated certain points which are of importance in the interpretation of the agglutinin curves, and these should be of practical value in assisting clinical work

Paratyphoid Fever

We published an interesting communication on paratyphoid fever in our issue of Feb 26th by Lieutenant-Colonel W H WILLCOX, R A.M C, based on his experience in the Mediterranean area He estimates that paratyphoid is undoubtedly at the present time the most important disease to be considered from the military point of view, since by its frequent occurrence at all periods of the year it causes such a large amount of incapacity for duty It is a preventable disease and every means must of course, be taken to preclude its occurrence Amongst the chief measures mentioned by him are the following 1 Early recognition of the clinical symptoms of the disease and early clinical diagnosis which must be acted upon without delay 2 Bacteriological investigation for the early diagnosis of cases and for the recognition of suspected carriers of the disease 3 General preventive measures such as disinfection of clothing bedding tent, &c, of the patient 4 Prophylactic inoculation against the disease

Typhus Fever

Typhus fever in Serbia formed the subject of the Chadwick lectures delivered at the Royal Society of Medicine by Dr R O MOON He gave an interesting account of his experiences in Serbia and the difficulty experienced in dealing with the outbreak. He stated that although the specific cause of typhus fever has not yet been definitely demonstrated, yet all analogy points to its being due to a micro-organism, and that it is conveyed by means of lice Hence, the most direct way of stopping the spread of the disease is to destroy the lice and he described the measures of inspection and disinfection which should be adopted With regard to treatment, he maintained that absolute rest in bed was, of course essential The sick room should be large and airy with the windows open night and day and as far as possible the hospital attendants should be individuals who have been rendered immune by an attack of the disease Thorough ventilation was really the most important factor in the treatment, and not only is it the most efficacious antipyretic but it also has a very favourable effect upon the nervous system, the violent headache and insomnia of the early stages of the disease are lessened by this method more than by anything else. The intensity of the delirium is diminished and the mental condition of the semi-comatose patient appears to be favourably influenced

Cerebro-spinal Fever

The outbreak of cerebro-spinal fever in several military training centres during the winter of 1914–15 created at once an urgent demand and a valuable opportunity for investigation of the outstanding problems of that disease When the epidemic declined in the summer months Professor F W ANDREWES Professor W BULLOCH and Professor R. T HEWLETT were invited by the Medical Research Committee to form an advisory committee for the purpose of sifting and summarising the experience gained in the scattered bacteriological stations The report drawn up is one of exceptional interest and value It concerns itself chiefly with bacteriological and epidemiological questions The authors insist that there is no need to look beyond the meningococcus (*Diplococcus intracellularis meningitidis*) for the essential cause of the disease, nor any warrant from facts for seeking to invoke the obscure phenomena of "pleomorphism" in explanation of the anomalous features Further, their work goes to show that the conception of the meningococcus as a bacterial species

of which all the members are identical, must give place to the recognition of a meningococcus group, including several types of races, just as has been shown in connexion with the Gärtner group of bacilli, and more recently in connexion with the pneumococcus An interesting feature of the report is the new point of view which the committee takes up, tentatively as yet, with regard to the origin of carriers Hitherto the carrier condition has usually been attributed to contact with a victim of cerebro spinal fever, but now it is suggested as probable that a large proportion of the carriers found in any group of contacts "were not infected from the case of cerebro spinal fever, but represented the proportion of carriers already present amongst the population where the case had arisen" From observations made on carriers it was concluded that the causal organism is not easily dislodged from the naso-pharynx, and that carriers would be little liable to convey infection if they always took the precaution of coughing and sneezing into some handkerchief or piece of rag which could be burned. The danger of transfer by saliva is probably slight as the streptococci which abound in that secretion are strongly inimical to the meningococcus, while the microbe is also very intolerant of drying

Beri beri

Lieutenant-Colonel W H WILLCOX contributed an interesting article to our columns on beri beri based upon the careful study of over 50 cases seen during the latter half of the past year in the Mediterranean area. It is generally recognised that diet plays a very important part in the causation of the disease, but in many of the cases, in addition to the factor of diet, there was evidently some toxic influence at work, such as a previous attack of dysentery, chronic diarrhœa, paratyphoid, purpura, or jaundice In the Dardanelles series the presence of a toxic factor derived from such diseases necessitated a special diet, which, though suitable to the diseases in question, was almost devoid of anti-beri-beri vitamine, and so "an additional dietetic factor was added to a borderland case, thus causing the development of beri beri"

Shell Shock

Much has been written and various discussions have taken place during the year on the condition known as shell shock. Ever since the term has been introduced there has been a tendency to consider that the cases might be divisible into two classes One class has been assumed to include various exaggerations of pre-existing forms of mental deficiency, the second has been held to be akin to hysterical manifestations The number of cases now investigated appears to afford conclusive evidence that the subject of shell shock is not likely to be disposed of on either hypothesis The Lettsomian lectures by Major F W MOTT on the Effects of High Explosives upon the Central Nervous System, and the papers which we have published by Lieutenant-Colonel CHARLES S. MYERS upon the Study of Shell Shock, refer to many of the latest phases of scientific investigation and speculation concerning the subject The terrible experiences through which many of the sufferers have passed are well known, and Colonel MYERS attaches great importance to the influence of past history, while Major MOTT emphasises the harmful results likely to arise from the repetition of the incidences in the form of dreams The latter observer considers that the symptoms of headache, weariness, loss of power of concentration, irresolution, and mental fatigue constitute a neurasthenic condition frequently found as a result of shell shock, and he explains the condition as the acquirement of the habit of drawing on the reserve of neuro-potential, the patient is unable through insomnia or sleep disturbed by terrifying dreams, worry, and anxiety, to regain the balance and return to the normal conditions of automatic renewal of nervous energy as fast as formerly Major MOTT endeavours to trace some definite structural or pathological change in the central nervous system He assumes that though there may be no evidence to show that the living matter is altered, the symptoms point to a physical or chemical change and a break in the links of the chains of neurons which subserve a particular function He also attaches importance to physical trauma, concussion, or 'commotio cerebri" and he appears to allow for some chemical changes due to poisoning with CO and for the resulting deoxygenation of the blood

At a discussion on Shell Shock at the Royal Society of Medicine many opinions were expressed as to the origin, symptoms, and treatment of this condition Amongst others Dr HENRY HEAD gave his view, which was that "shell shock" was a heterogeneous collection of different nervous affections from concussion to sheer funk, which have merely this much in common, that nervous control has at last given way Dr E G FEARNSIDES, in relating his experiences, drew attention to the mode of onset The cases in which the symptoms appeared slowly were among the older non commissioned officers, in whom a breakdown occurred after a prolonged period of stress when adequate sleep had been for a long time unobtainable, whilst in cases of sudden onset the average age of the men had been found to be distinctly lower The relation to epilepsy was also discussed, for instances have been recorded in which the shock of a high explosive shell has been found to be the starting point of true epilepsy in men who had not previously suffered from it Captain E F BUZZARD S paper, entitled "Warfare on the Brain," which is published in our columns this week, discusses the subjects of shell shock and traumatic epilepsy very interestingly

Dr H WILTSHIRE, after considerable experience at No 12 General Hospital, is of opinion that gradual psychic exhaustion from continued fear is an important disposing cause of shell shock, particularly in men of neuropathic predisposition In such subjects it may suffice to cause shell shock *per se* In the vast majority of cases of shell shock he believes the exciting cause to be some special psychic shock Horrible sights are, in his view, the most frequent and potent factor in the production of the shock, losses and the fright of being buried are also important in this respect

Trench Nephritis

The large number of men returning from the front suffering from nephritis has naturally given rise to much speculation Captain W LANGDON BROWN opened a discussion on the subject at the Royal Society of Medicine He maintains that the cases are true examples of acute nephritis, as shown by (*a*) the combination of œdema with albuminous urine containing casts, (*b*) the nature of the proteins in the urine, (*c*) the tests for renal permeability, and (*d*) post-mortem evidence The cases had been too prevalent to be merely accidental, and the close similarity of the symptoms pointed to a common cause The curve of incidence suggested an infective agent, as did also the unequal degree to which the different units were affected So far bacteria had not been found responsible for the infection He considered that there was a specific organism responsible which resembled, but was not identical with, that causing scarlet fever In the discussion which followed Professor F W ANDREWES stated that there was nothing histologically to distinguish trench nephritis from other forms of acute and subacute nephritis The acute glomerular nephritis of scarlet fever was comparable in all respects with trench nephritis He had failed to find any micro-organisms in the urine or kidneys

Cardiac Disabilities

In opening a discussion on the "Soldier's Heart" Sir JAMES MACKENZIE defined this condition as characterised by exhaustion of the circulatory system, shown by breathlessness, a sense of suffocative and precordial discomfort, and a frequency which if not raised during rest becomes unduly increased on slight exertion But the symptoms are not confined to the circulatory system, and in 90 per cent at least of the cases observed this system is not the one primarily affected, the circulatory symptoms are part of a general illness in which the central nervous system has a large share Apart from the vaso motor disturbances, there is an irritability of temper, a depression of spirits an inability to concentrate thought a nervous tension liable to lead to sudden outburst and a tendency to focus the attention constantly on the condition of the heart which imply a profound influence on the nervous tissues In regard to treatment, it is important to note Sir JAMES MACKENZIE S opinions Where the condition is one of simple "soldier s heart," absolute rest is not indicated, rest in bed may tend merely to further weaken the cardiac muscle He maintains that appropriate and not excessive exercise is the right treatment both for the heart and the depression of spirits Captain J PARKINSON as the result of an inquiry into the various conditions which lead men on active service to report sick with symptoms suggesting heart disease, points out that among soldiers in training and on active service are a number

who complain of cardiac symptoms on exertion but show none of the physical signs indicative of heart disease These men, he states, are the subjects of a cardiac disability which is unmasked by the exertion required of a soldier It is not a specific variety of heart disease, and needs no such name as "soldier's heart" In about half the cases in his series the disability had been present to some extent in civil life, and was therefore not the result of military service Captain PARKINSON finally expresses the opinion that the absence of abnormal physical signs in the heart of a soldier should not prevent his discharge from the Army if, under training or on active service, he shows breathlessness and præcordial pain whenever he undergoes exertion well borne by his fellows

SURGERY

In surgery more than in any other department of medicine the war has overshadowed everything else The few meetings of the medical societies which have dealt with surgical subjects have had reference to the war only

Treatment of Wounds

The foremost of the questions, discussed over and over again, has been that of the best method of treatment of the wounds received in war, and in this war these are almost all gunshot wounds, for of wounds of the *arme blanche* there have been very few indeed The young surgeon must find himself very bewildered as to the choice he should make for the treatment of gunshot wounds, though it might well be thought that after two and a half years of war surgeons would have come to some sort of an agreement as to the best method to employ But it is not so at all The variety of treatment is great, and equally good results are claimed from each technique The method that is the most widely known and received is that introduced by Colonel Sir ALMROTH WRIGHT He irrigates and dresses the wound with a hypertonic solution of common salt, at first the liquid contained also some sodium citrate, but that has now been found to be unnecessary, and its inclusion needlessly complicates the preparation of the solution This hypertonic solution has several actions, but its main function is to stimulate the effusion of lymph from the vessels of the walls of the wound This effused lymph possesses important antiseptic powers and the lymph also contains leucocytes possessing phagocytic properties It is clear that the method has been founded on careful laboratory experiments, and the truth of the foundations on which the method is based is shown by the success of it in practice

Probably the next most popular application to wounds is a solution containing hypochlorite One of these is eusol, and another is "Dakin's solution" Both of these have been employed very largely, and of Dakin s solution it has been said that it possesses 30 times the antiseptic power of carbolic acid while at the same time it has little harmful effect on the tissues CARREL has introduced a special method of using a slightly modified Dakin s solution, and he claims that if the details of his method are followed a septic wound can be rendered sterile in about a week. A still stronger chlorine compound has been introduced by DAKIN, it is called "chloramine,' or "tolamine", it is said to be five times stronger than DAKIN S original solution The use of iodine in wounds seems to be completely discredited and it appears to be now very little employed Mr A E MORISON introduced the use of magnesium sulphate and glycerine and those who have seen its action have expressed themselves as very satisfied with the results obtained. Captain W B DAVY has found much benefit from the use of salt tablets wrapped in gauze packed into the wound and when the salt dissolves the salt acts as a drain Major A. J HULL has introduced the use of "salt sacs' in the treatment of gunshot wounds A two-walled sac is made of bandage between the walls of which four layers of gauze are placed, the interior is filled with salt and the mouth of the sac is sewed up One or more of these sacs are used to fill the wound any spaces between being occupied with gauze The drainage is said to be perfect every portion of the wound being drained by the osmotic action of the salt The dressing does not as a rule need changing for a week or so and the results are said to be excellent

Dr LOUISA GARRETT ANDERSON Dr HELEN CHAMBERS and Miss LACEY have conducted at the Endell street Military Hospital an investigation into the relative value of various methods of dealing with septic wounds, and amongst other results they have found that a solution of salicylic acid about two drachms of a saturated alcoholic solution to a pint of water, forms a very effective lotion to a septic wound, for the crystals of the salicylic acid become deposited in all parts of the wound, and a diminution in the number of bacteria on the surface of the wound occurs They have also found a mixture of salicylic acid and gelatin very useful, the mixture, with the gelatin liquefied by heat, is poured into the wound and fills the recesses accurately Major T F BROWN has obtained very satisfactory results with picric acid, it is known to be a very efficient antiseptic, and as it also possesses marked anodyne properties, and as it stimulates the growth of granulation, its employment is likely to be extensively useful, the main argument against it appears to be that at the present time picric acid is being so widely employed in the infliction of wounds that the Munitions Department might raise objections to its employment in their cure Major GEORGE STOKER has experimented with the application of ozone in the treatment of septic wounds, and he has found it very useful At first there is an increase in the amount of pus formed, but it soon diminishes in amount, and before long the discharge becomes serous in character

It will have been seen that there is a very large number of applications from which the surgeon can choose, we have no doubt that good results can be obtained from any of them and from many other dressings which we have not mentioned, but in practice the exigencies of time and space go far to limit the number of methods which are really available

Captain R H JOCELYN SWAN and Mr KENNETH GOADBY have met with no small measure of success in the treatment of septic wounds by means of vaccines, and, in fact Captain SWAN now makes it a rule that every case arriving from overseas with a septic wound shall on entrance into the hospital have an initial dose of a mixed polyvalent vaccine of proteus and streptococcus He is satisfied that this treatment has to a large extent assisted the other methods of treatment employed It tends especially to prevent secondary hæmorrhage In order to control the results he had other wards in which no vaccines were employed, and it was in those cases not treated with vaccine that secondary hæmorrhage occurred He points out that it is unreasonable to expect that a vaccine should cure a septic wound if unaided by the ordinary surgical measures such as drainage

Head Injuries

The proportion of head injuries is not so great now as it was at an earlier stage of the war, and this is, in part at all events due to the fact that the steel helmets have gone far to reduce the number of cases A bullet travelling at high speed can easily penetrate the helmet, but it arrests low speed bullets, and it is specially useful in stopping shell fragments Major ALEXANDER DON has described his experience with head cases at a casualty clearing station, and he comes to the opinion that the linear or angled scalp incision, as practised by most French surgeons, with a small trephine opening, is more useful than the large scalp flap as practised for the most part by the British surgeons, for the results, as he has seen them, are better Captain H F WOOLFENDEN has described two cases in which during the operation for the removal of a foreign body from the brain he opened the lateral ventricle, and yet the patients recovered, the sepsis present being but slight

Captain H ELWIN HARRIS has reported an interesting case in a man who, while being dressed for a wound in the hip was struck by another bullet which made him unconscious No bullet wound was found, but from a consideration of the circumstances and the examination of the skiagram it is clear that the bullet entered at the left inner canthus, passed between the eyeball and the inner wall of the orbit and that it then entered the sphenoidal sinus, after wounding the optic and the third nerve By the expenditure of a large amount of trouble Captain HARRIS at length succeeded in withdrawing the bullet through the left nostril The patient recovered rapidly

Sir WILLIAM J COLLINS has described a case in which very extensive destruction of the right side of the face from the ear to the nose had occurred Seven operations were performed before the patient came to England and two further plastic operations were performed, and then an artificial

cheek was designed of painted and moulded copper plate with an eye attached and carrying a pair of spectacles, with a very satisfactory cosmetic result, as shown by a photograph published in these columns

Some Curious Cases of Shot Wound

Many remarkable cases showing the result of treatment of shot wound have been recorded in medical literature, and space only allows us to refer to two examples

A gunshot wound of the inferior vena cava is almost certainly fatal, but Captain D C TAYLOR has recorded a case in which a fragment of a bomb entered above and to the right of the umbilicus When the abdomen was opened two large tears in the jejunum were found, both of these were sutured, and then a retroperitoneal hæmatoma was seen, and when the posterior peritoneum was slit up with scissors there was furious bleeding from a longitudinal tear in the vena cava three quarters of an inch long The hole in the vein was closed by means of six pairs of artery forceps which were left on and were not removed until the fourth day The patient recovered

Mr L E BARRINGTON WARD was able to remove a bullet which had made its way into the middle mediastinum The man had been wounded, and about five months later he rejoined his regiment for further service, but he had pains in the chest with shortness of breath on marching The skiagram showed a bullet apparently lying in the pericardium At the operation the pericardium was opened anteriorly and the bullet was looked for but not found The lung and pleura were gently separated from the pericardium and then at a depth of 4 inches the bullet was found, with a few drops of pus The bullet was removed and the patient had an uneventful recovery

Celluloid in Plastic Surgery

In much of the plastic surgery needed in the treatment of extensive injuries the surgeon often finds great difficulty in filling up spaces where the tissues have been extensively lost Mr C HIGGENS has used celluloid plates with very good effect, though great care had to be taken that the piece of celluloid did not press upon the line of the suture, or it was liable to prevent healing Later, however, he found that a solution of celluloid was even more useful, it is injected gently with a syringe having a screw piston These injections have done so well that he has given up the use of the plates

Left sided Appendicitis

It is well known that the pain of an appendicitis may be felt not in the right iliac fossa but on the left side of the body, and whatever the explanation of this may be the appendix is situated on the right side There is however, a much rarer condition, in which by a transposition of viscera the cæcum is on the left side of the body, and when in such a case an appendicitis occurs, the signs and symptoms may be found on either side Dr GRAHAM W CHRISTIE has described a case in which there was a left-sided appendicitis though the pain was on the right side, but in another case under Dr C E CORLETTE, when the abdomen had been opened, no cæcum could be found on the right side, and on further examination it was discovered that there was an absence of the transverse colon, and the ascending colon was in contact with the descending colon Such cases as these are very disconcerting when encountered at an operation

Abdominal Operations on Children

As a rule very small children do not stand abdominal operations well, especially those which are in any way prolonged Surgeon C P G WAKELEY has put on record a very striking case in which the stomach of an infant only six months old was opened to remove a brooch which had been swallowed two days before By means of a skiagram it was seen that the brooch was in the lower third of the œsophagus, with the pin pointing towards the mouth An attempt was made to close the brooch by the use of the bronchoscope, but the only result was to push the brooch into the stomach, from which it was removed through an abdominal incision The pin of the brooch had passed through the anterior wall of the stomach, and so a slight and local peritonitis had arisen The wound healed well and the child recovered completely Dr IDA M GUILLAUME has related the particulars of a case in which a child only 15 days old had had a strangulated hernia for four days, when Captain J W WALKER operated although the child appeared almost moribund A strangulated left inguinal hernia was found and released Gangrene of the testis had occurred from pressure, but complete recovery followed

Dr F M NEILD operated on a boy 10 years old for perforation of the bowel from typhoid ulceration about eight hours after perforation had taken place The child did well for nine days after the operation, then acute intestinal obstruction took place, and when the old wound was reopened it was seen that the obstruction was due to pressure from a band of omentum The obstruction was removed and the patient recovered Mr W H BATTLE has pointed out how difficult it is sometimes to recognise a rupture of the bowel, for the signs and symptoms may be extremely obscure so that unless the surgeon is waiting for the symptoms to manifest themselves the opportunity to operate may pass by He expresses his agreement with the teaching of the late Mr BERNARD PITTS that exploration should always be done when there is a clear history of an abdominal injury, such as a kick from a horse

Removal of Foreign Bodies from Œsophagus and Bronchi

The removal of foreign bodies from the œsophagus and bronchi has been much facilitated by the introduction of the direct method, and Mr IRWIN MOORE has described a number of instruments and processes aiding their removal, especially he has devised some hon slipping forceps of proved utility He has also designed endoscopic shears, which can cut through tooth plates

OBSTETRICS AND GYNÆCOLOGY

Twilight Sleep

A subject which has excited a good deal of interest of late, more especially in the lay press, is that of anæsthesia during delivery, and particularly that variety of it called "twilight sleep" The subject was considered in a leading article in THE LANCET of Sept 30th This is a variety of morphine scopolamine narcosis, and was strongly recommended by GAUSS in 1906 when he published his experiences of it in 600 cases The steady fall in the birth rate is beginning to cause general alarm, and it has been suggested if women could be assured that the pains of childbirth could be relieved to a marked degree that they would be less reluctant to bear children Since its original introduction the method has been tried in a large number of clinics in this country, on the continent, and in the United States On the whole, it has not met with complete approval The chief objection raised to its use is its alleged tendency to produce frequent asphyxia and death of the child, and prolonged labour with the danger of post partum hæmorrhage on the part of the mother Many obstetricians, too, have been disappointed with the results as regards the amnesia it is designed to produce The method depends for its action on the fact that scopolamine tends to cause loss of memory The woman perceives the pains at the time to a greater or less degree but completely forgets them, and on waking up half an hour or so after the birth of the child is totally oblivious of the fact that she has had any pains If success is desired it is necessary to observe very carefully the special technique laid down by the introducers The first injection must be given when the pains are recurring every three to five minutes and are lasting, as measured by the watch, from 30 to 45 seconds If the injection is given before this stage is reached it will be too soon and uterine inertia is likely to supervene, and if it is given after this stage it is very difficult to secure the desired degree of amnesia The second dose of scopolamine only should be given three quarters of an hour after the first injection of scopolamine and morphia The morphia in an ordinary case should not be repeated Half an hour after the second dose has been administered the patient's memory should be tested and a third dose, if necessary, given one to one and a half hours after the second dose It is not advisable to give more than four doses of scopolamine although in exceptional cases it may be necessary The uterine contractions, the maternal and fœtal heart sounds must be carefully watched and the patient should be under the constant supervision of a medical man and should not be left to the care of a nurse The dose given must be carefully determined by the memory test

and the minimal quantity necessary should always be administered Even in cases where the amnesia up to that time is complete it is often necessary to give a little chloroform or ether as the head is passing over the perineum If suitable cases are selected, if minimal doses are used, and if the condition of the mother and child is carefully supervised, the danger of fœtal asphyxia or post-partum hæmorrhage can be reduced to a minimum A method of this kind which requires the constant supervision of the patient by a medical man if all risks are to be eliminated, is obviously only available for a small number of patients If it is to be used on a large scale without proper and continuous supervision as appears to be the intention of those who at the present time are trying to make its use more generally available, disaster will certainly follow Scopolamine is a drug which is difficult to standardise, and every now and then a patient will be found to exhibit a marked idiosyncrasy to its action The whole matter is one which would bear further investigation, and those who propose to employ this method in large numbers of lying in cases should be well aware of the special dangers which attend it and the necessity for a strict observance of the proper technique for its administration

Maternal and Child Welfare Centres

A large number of maternity and child welfare centres have been started in different parts of the country and a great deal of very good work is being carried out in them This work can, however, only be carried on properly when full use is made of the information furnished by the Notification of Births (Extension) Act 1915 The important subject of maternal mortality and its relation to infant mortality was fully considered in a supplement to the Forty fourth Annual Report of the Local Government Board by the medical officer of the Board. As he points out had the birth rate been the same in 1914 as it was in 1876 467,837 additional infants would have been born in the former year These figures illustrate the immense importance of measures directed to saving the lives and maintaining and improving the standard of health of the mothers and their children

The figures quoted show further, that the death rate, from conditions other than puerperal fever adversely affecting child bearing is much lower in London than in the provinces This means that no less than 800 women die each year in England and Wales whose lives would be saved if the experience of the rest of England were as favourable as that of London If puerperal fever were to be eliminated, as it practically has been from lying in hospitals a further saving of some 1100 lives would be secured annually in England and Wales

The majority of the deaths of mothers from child bearing are caused by puerperal fever hæmorrhage and convulsions Most of these conditions are due essentially to preventable causes The report further shows that an excessive mortality of mothers means also an excessive proportion of still born infants and an excessive proportion of deaths of infants in the early weeks after live birth To remedy these conditions it is very necessary that skilled assistance should be available at maternity centres The notification of births and of puerperal fever requires to be made more effective and there is a need for the provision of pathological aids for diagnosis

The great importance of ante natal work both for the mothers and their unborn children was emphasised at a discussion held on the Need for Greater Care of the Woman during Pregnancy and Childbirth at the Obstetrical Section of the Royal Society of Medicine at the November meeting The discussion was opened by Dr S G MOORE of Huddersfield The very great importance of the adequate supervision of the pregnant woman was insisted upon by all those who took part in the debate and the question of the notification of pregnancy as an aid in this direction was mooted but did not meet with much encouragement It is difficult to see how the notification of pregnancy ever can be made compulsory, but unless pregnant women can be persuaded voluntarily to give notice of their condition to medical men the complete utilisation of the preventive measures available for the reduction of the maternal mortality in childbed seems impossible The most important factor in the whole scheme of maternity centres and child welfare centres is the home visitor If the right class of women are obtained for these appointments they will be able to bring a very powerful personal influence to bear upon pregnant women to persuade them in all cases, whenever necessary, to seek medical advice for any of the disorders of their condition If it were only possible for every pregnant woman to be under the care of a medical man during the term of her pregnancy not only could the maternal mortality in childbed at once be lowered, but a lowering of the early infant mortality would inevitably follow The subject is one which calls for careful study and consideration at the hands of all medical men and women, particularly at the present time, when the lives of mothers and of their children are so important

---

OPHTHALMOLOGY

There is little to record of progress in ophthalmology except in connexion with the problems associated with the war The injuries met with are of all degrees of severity In the worst cases the eye is irretrievably damaged and there is much destruction of lids and neighbouring parts These injuries leave scope for much ingenuity in plastic operations Often the lids are so much damaged that the best procedure is to remove the conjunctiva and cover the whole surface with skin The wounds are often septic, and excision of the eye in these cases is accompanied with risk of meningitis The surgeons at the front are therefore often eviscerating these eyes, leaving a collar of sclerotic around the optic nerve These cases usually require further operation subsequently, as the cup of sclerotic becomes filled with granulation tissue which keeps up a continuous discharge Moreover, the sclerotic is badly supplied with blood vessels and necroses, hence it is necessary to dissect it out Wounded lids and sockets often have dense bands which prevent the wearing of an artificial eye. Contracted sockets have always been very difficult to deal with but we may hope for some improvement in methods as the result of so extensive an experience.

During the war injuries to the eyes have resulted in an extraordinary variety of lesions in the fundus oculi. Hæmorrhages ruptured choroids, retinitis proliferans pigmentation, and so on, are very common, and present many interesting features There is a wealth of material for painstaking investigation and record, but unfortunately, no one has leisure for such peaceful pursuits

Intraocular Foreign Bodies

In every war wounded eye there is the possibility of the presence of an intraocular foreign body One of the base hospitals in France has a giant magnet and all the cases passing through this hospital are put up to the magnet as a routine measure Unfortunately many of the foreign bodies are non magnetic It is therefore necessary in almost every case of wounded eye to have skiagrams taken and extremely accurate localisation is necessary This can only be effected by special apparatus which has not always been available For this and many other reasons it would be better if there were more concentration of the eye cases, and there is evidence that the authorities are adopting this view During the past year the subject of foreign bodies in the eye has been discussed at the annual congress of the Ophthalmological Society of the United Kingdom and the war aspects were duly borne in mind Where one eye only is injured the surgeon's chief anxiety is often the danger of sympathetic ophthalmitis in the other eye The treatment however is based on exactly the same principles as in civil practice and it is a gratifying sign of efficient supervision that few if any, cases of sympathetic ophthalmitis have ye occurred

Nervous Affections

Apart from actual lesions of the eyes themselves the nervous affections of the visual apparatus have attracted most attention The amblyopia associated so frequently with so-called "shell shock has been discussed by ophthalmologists neurologists and psychologists It may be recalled that the Russo-Japanese War gave rise to many cases of wound of the occipital lobes of the brain and that these formed the subject of an admirable monograph by a Japanese author Similar cases have been studied in this war by GORDON HOLMES and W T LISTER more especially with reference to the cortical representation of the macula Their paper before the Section of Ophthalmology of the

Royal Society of Medicine may be profitably read in conjunction with an exhaustive pathological research by J SHAW BOLTON and WILLIAM ROBINSON in a recent number of *Brain* Still more recently a very striking clinical investigation of similar cases by Captain RIDDOCK has been discussed at the Section of Neurology, the interesting point being that appreciation of movement may persist in the otherwise hemianopic field

The general mass of ophthalmic literature has been much reduced owing to the war It has already been announced in THE LANCET that the three British journals—the *Royal London Ophthalmic Hospital Reports*, the *Ophthalmic Review*, and the *Ophthalmoscope*—are to be merged in a single representative journal to be called the *British Journal of Ophthalmology*, the first number of which will appear in January next

NEUROLOGY

The neurologist may be forgiven if he finds legitimate cause for satisfaction in the impetus which the war has given to the study of neurology, and the old time neglect of it seems the more inexplicable So large is the output of articles dealing with the neurology of the war that any attempt at summarisation must appear almost hopeless To keep abreast of these contributions is an arduous task, while, unfortunately, many of them do not lend themselves to easy abstracting The following paragraphs, therefore, form rather a guide to some papers and books than any discussion of their contents, and no attempt is made to allude to numerous valuable contributions to English literature, as these must, in many cases, have already come under the notice of our readers

Lesions of the Peripheral Nerves

In "Les Blessures des Nerfs," by Dr J TINEL, in charge of one of the French military neurological centres, a book of some 300 pages and an equal number of illustrations published by Masson et Cie, will be found an admirable compendium on the subject of injuries to the peripheral nerves Its clinical side leaves nothing to be desired Every aspect of such lesions, every factor bearing on exact diagnosis and on the desirability or otherwise of surgical interference is discussed with the lucidity of experience Nothing has been more striking in war neurology than the overwhelming number of cases of peripheral nerve injury, and in this volume their classification and differentiation are dealt with in a highly practical way Dr G DENY, of the Salpêtrière, contributes a general review of the subject to *L'Encéphale* for December, 1915 In this paper the different syndromes of interruption, compression, and irritation respectively are fully described and explained The writer gives no fewer than 40 references to articles on peripheral nerve lesions in war (all French) In the issues of the *Revue Neurologique* for the first six months of 1916 there are some 30 original communications on peripheral nerve injuries, and at least as many more abstracts of similar papers from other journals Reference may be allowed to two papers merely, one by MEIGE and BENISTY in the *Presse Médicale* for April 6th, 1916, and the other by LERICHE in the same journal for April 20th 1916 The first of these contains a valuable study of the little understood vaso motor, trophic, caloric, secretory, and painful phenomena often accompanying peripheral nerve lesions The writers show the importance of the implication of vascular and sympathetic nervous system tissues in this connexion LERICHE deals with the treatment of causalgia in certain cases, and attributes it to involvement of periarterial nervous plexuses For treatment he suggests stripping periarterial cellular sheaths for some 8 or 10 centimetres at the level of the lesion.

Lesions of the Spinal Cord

At the Medical Society of London the subject of spinal cord lesions was fully discussed [1] Captain JAMES COLLIER introduced the discussion with a valuable paper, in which he described (1) Direct lesions, (2) indirect lesions from indriving of bone, impact, and concussion, (3) secondary lesions from hæmorrhage and œdema, and (4) remote lesions, due to sudden raising of intraspinal pressure caused by passage of missile or by general concussion effect CLAUDE and PORAK [2] have made a useful contribution to the study of gunshot wounds of the cauda equina They distinguish three groups of cases (1) Prolonged paralysis of both lower extremities, (2) flaccid paraplegia of both legs, with subsequent unilateral improvement, and (3) unilateral paralysis from the commencement They remark that on the whole the prognosis is not unfavourable and that sometimes a striking degree of improvement may take place even in cases that have appeared hopeless A considerable number of papers have been devoted to a consideration of spinal cord reflexes after complete and incomplete lesions, and to the important question of "spinal automatisms" (WEISENBURG, JARKOWSKI, ASTWAZATUROF, GUILLAIN and BARRE, MARIE and FOIX)

Lesions of the Brain

At a joint meeting of the Société Nationale de Chirurgie and the Société Neurologique of Paris (May, 1916) a very long and detailed discussion took place on the whole question of intracranial injuries of war The topics of surgical interference, secondary conditions, such as hernia cerebri abscess, meningitis, and epilepsy, the duration of the symptoms, and cranioplasty, even the question of the removal of such cases from the field and the value of the helmet, were discussed in all their bearings The reader is referred to the *Revue Neurologique* of June 1916, for the record of the proceedings At a previous meeting of the Société de Neurologie an illuminating debate on the general procedure to adopt in cerebral injuries took place Reference must also be made to the paper by M BABINSKI on the exact nature of so called functional disturbances from gunshot wounds, shock, emotion, &c This is a paper of peculiar interest and value to the neurologist [3]

Neuroses

This year's Lettsomian lectures [4] were delivered by Major F W MOTT and devoted to a consideration of the effects of high explosives upon the central nervous system They deserve careful study by all interested in the subject Major R G ROWS has written on the mental conditions following strain and nerve shock Two Thèses de Paris have been devoted to the same topic (VACHET, BOUCHEROT) In the Italian *Rivista di Patologia* (1916) is an important paper by BUSCAINO and COPPOLA on mental disturbances in war time It is based on a study of cases among soldiers, civilians, refugees, and hostages, and it contains a review of the literature and a lengthy bibliography

ELECTROTHERAPEUTICS AND RADIOLOGY

One of the most important and valuable measures adopted during the present war is the establishment of orthopædic hospitals and convalescent camps, where the after effects of the injuries and diseases inherent to warfare are dealt with and the work of the ordinary hospitals completed The carrying out of the scheme has involved the employment of electrical methods of treatment to an extent hitherto unknown, and with results that must afford the utmost satisfaction to those interested Stiff joints, injured nerves and paralysed muscles are now dealt with in the most thorough manner and under expert medical direction Ordinary continuous and interrupted currents diathermy ionisation, static electricity are employed either alone or more commonly in association with radiant heat massage, or the more modern *eau courante* or whirlpool bath This latter device seems to have some good properties, but it is too soon to estimate its value with any accuracy Owing to the precautions taken cases of "trench foot" are not nearly so common as in the early months of the war but a certain number are unavoidable, and for the stagnant state of the circulation left by this and kindred conditions the local application of high frequency currents is favoured by some while others pin their faith to static electricity, which appears to be growing in favour It cannot be said that the past year has evolved anything that is a radical departure from known methods but owing to the extensive employment of electricity and the large numbers of keen workers engaged there has been a great improvement in methods of application and technique as a visit to any one of these institutions will amply demonstrate

[1] THE LANCET 1916, I., 677

[2] L'Encephale December 1915

[3] Revue Neurologique April-May 1916.

[4] THE LANCET 1916 I 331 & I 545

Radiology

In the field of radiology also there is nothing very new to report There has been a great drop in the number of new methods brought forward for the localisation of foreign bodies, and workers have usually settled down to their favourite scheme, the simple one of triangulation finding the most favour The therapeutic application of the X rays is steadily advancing, and with the use of "hard" tubes and thicker filters better results are being obtained. Indeed, where the two are equally usable, in cases of malignant disease at least, there is reason to believe that the X rays are superior to radium A more uniform irradiation is made possible without any risk of a local and more or less intense reaction, such as often occurs around the site of the radium applicator Tubes of the Coolidge type are a great help in administering the therapeutic doses now demanded

The most recent development as regards the use of the ultra violet rays is the employment of electrodes of practically pure metallic tungsten in the arc lamp The resultant radiation is very rich in ultra violet rays and both regular and uniform This is a great improvement on the lamps using electrodes of wolframite Moreover, it appears that any simple form of arc lamp can be employed with excellent results, but, of course, precautions must be taken to shield the operator and patient against undesired exposure, as an "erythema dose" is very quickly produced by this rich fountain of ultra violet radiation

TROPICAL AND EXOTIC DISEASES

As was the case last year, the investigation of the problems connected with tropical medicine and exotic diseases has suffered somewhat by the absence of many of our experts on active service But notwithstanding this, progress continues to be made in many directions A valuable and timely contribution to our general fund of knowledge was published in THE LANCET by Dr F G CLEMOW, formerly British Delegate on the Constantinople International Board of Health. This series of articles described the Shiah Pilgrimage and the Sanitary Defences of Mesopotamia and the Turco-Persian Frontier, a subject of importance at the present moment, when plague, cholera, and other diseases are threatening in that region

Dysentery

Dysentery and other protozoal infections of the intestines have demanded a share of attention during the year owing to the invaliding and mortality which they have caused among our troops, especially among those in the Near East and Mesopotamia Many papers on the subject have been published, and among these we may mention, in addition to those already noted (1) Intestinal Disorders Arising from Protozoal Infections, by Captain B R G RUSSELL, R.A M C, (2) *Lamblia Intestinalis* Infections from Gallipoli, by Lieutenant A M KENNEDY, R A M C, and Lieutenant D D ROSEWARNE, R A M C, (3) The Nature and Distribution of the Parasites observed in the Stools of 1305 Dysenteric Patients, by Dr H B FANTHAM, and (4) An Enumerative Study of the Cysts of *Giardia (Lamblia) Intestinalis* in Human Fæces by Dr ANNIE PORTER

Kala azar

Sir LEONARD ROGERS I M S to whose efforts we owe largely the adoption of the modern treatment of dysentery by emetine, as well as the successful treatment of cholera by the hypertonic and permanganate method, has recently directed his untiring energies to the treatment of kala azar "the black death" a disease formerly regarded in India as inevitably fatal and, in conjunction with Captain N H HUME I M S, he has been treating such cases in hospital at Calcutta by intravenous injections of tartar emetic with gratifying success Lieutenant Colonel J W CORNWALL and Assistant Surgeon H M LA FRENAIS I M S, have been studying experimentally the alleged association of the bug with the transmission of kala azar to man They have however, found little to support this view so far though further investigations are proceeding Attention has recently been drawn by Captain GORDON R WARD R A M C to the possible danger of kala azar being brought to this country from Malta by returning soldiers and he quotes two instances of the disease in British soldiers who had never been further east than Malta

Malaria

Malaria, the most important of all tropical diseases, has been making its presence felt in some of the war zones, causing mortality and invalidity among our Expeditionary Forces, particularly among the troops, both French and English, operating in the Valley of the Vardar, north of Salonica. In this unhealthy region many soldiers contracted malaria in spite of a daily prophylactic dose of 5 grains of quinine The question of the value of quinine prophylaxis came lately under discussion at a meeting of the Society of Tropical Medicine and Hygiene, at which Dr ANGUS MACDONALD, of Kingston, Jamaica, read a paper on the Position of Malaria in Sanitary Administration In this he maintained that continuous drugging with quinine might prevent attacks of malaria in anopheline countries, but statistics were still lacking to demonstrate the extent to which the use of this drug prevents the occurrence of the disease Surgeon General Sir DAVID BRUCE at this meeting also expressed, from personal experience, some scepticism in regard to quinine as a prophylactic against malaria adding that he wished that the matter could be "settled once for all by good evidence"

Ankylostomiasis

The campaign against ankylostomiasis is still being successfully carried on in various parts of the world, including the West Indies and other British colonies, by the International Health Commission, an offshoot of the Rockefeller Foundation which supplies the money for the prosecution of this most useful campaign

Trypanosomiasis

Mr G D MAYNARD, clinician and statistician to the South African Institute for Medical Research, has published a pamphlet on the trypanosomes of sleeping sickness, in which he freely criticised the views of the Sleeping Sickness Commission respecting the alleged identity of *T brucei* with the other trypanosomes causing sleeping sickness in Nyasaland, he deprecated the wholesale destruction of big game in Africa, his opinion being that the human carrier is of much greater importance in the diffusion of sleeping sickness than wild animals

Cholera in the Far East

There are some indications that cholera is assuming more active characters in the Far East, and it is therefore possible that in the coming summer it may under suitable conditions, as in the past, sweep with a fresh virulence from east to west across Asia into Europe During the autumn there was a considerable epidemic in Japan and Korea and in Indo-China, particularly in Annam and Tonkin, cholera was very prevalent during most of the year The infection was conveyed in one instance from Annam to Colombo, 55 cases occurring in connexion with the vessel, it was conveyed to Suez in another ship chartered by the French Government for the transport of Annamese labourers from Saigon to France, *viâ* Marseilles, to work behind the trenches In the case of this vessel altogether 136 cases occurred on board or at the quarantine station at Suez, the danger from it was regarded as so great that the vessel and its passengers were sent back to Saigon The presence of cholera carriers was discovered on this ship among the passengers who were apparently in good health Cholera was also present in the Dutch East Indies especially in Java during the year In India, up to the end of July, about 184 000 deaths were recorded from cholera Bengal and the Province of Bihar and Orissa being the chief sufferers There were several outbreaks in Persia, Siam and the Straits Settlements In the Philippine Islands about 4000 persons were attacked by cholera during 1916

Cholera in the Near East

Cholera during the summer and autumn was widely epidemic in Turkey, and Constantinople, Smyrna, Samsun, Jaffa Tripoli de Syria and Damascus were among the towns invaded by the disease At the beginning of the year cholera appeared among the Serbian soldiers and refugees who had been disembarked at Corfu and the Austrian prisoners brought by the Serbians to Albanian ports for conveyance to an island near Sardinia suffered considerably from the disease as did also Serbian refugees landed at Marseilles, also those landed at Biserta, Tunis, and other North African ports Recent reports mention the appearance of cholera in Rumania at Galatz, Braila and Toulcha (or Tuldja), also in some parts of Greece including Moschopolis and Koritza in

Northern Epirus Early in the year cholera was present in Austria, Hungary, Croatia, and Bosnia In the Caucasus the disease was prevalent at Tiflis and other places during the autumn A recent report mentions the appearance of cholera at the port of Jibutil, or Obock, in French Somaliland

Yellow Fever

The fourth and final report of the Yellow Fever (West Africa) Commission was issued last summer It confirmed the opinion that this malady was endemic on the West Coast of Africa, and that probably the continuous presence of the disease was maintained by the existence of endemic foci rather than by its almost universal prevalence amongst the native population There is no evidence that yellow fever has been brought to West Africa in recent years from any other country Up to the present the nature of the virus remains unknown In the third report the Commission finally rejected the claims advanced by Dr H SEIDELIN that the bodies discovered by him, and which he named the *Paraplasma flavigenum*, were the true parasites of yellow fever Vigorous prosecution of anti mosquito measures was strongly urged by the Commissioners

Plague in Europe

Some alarm was aroused in England towards the end of last autumn by the almost simultaneous appearance of cases of plague at three of our principal ports—namely, Liverpool, Bristol and Hull, all of which hold a high reputation for the excellence of their sanitary administration. None of the groups of cases were landed from a ship, but all occurred among the population on shore It was therefore a disturbing thought that if plague had found an entrance at three well administered ports, it would be easy for it to find a footing in ports less well administered Fortunately, the measures at once taken by the local authorities were successful, and some three months have now passed without any new case being reported In this connexion the existence of so many foci of the disease abroad shows the amount of danger to which this country is exposed through its shipping and commerce In Greece cases of plague occurred at Athens and the Piræus in January, and later in three islands—Syra, Chios, and Mitylene In September plague was present at Volo a port in Thessaly It has been stated also that two cases of plague occurred at Salonica during the year

Plague in Asia

In India plague still continues its ravages, over 184 000 deaths from it were recorded up to October, the United Provinces and Bombay Presidency being at present the worst-affected areas Ceylon has not yet got rid of the disease, for more than 240 cases were reported up to September at Colombo In the Dutch East Indies the prevalence of plague also continues, and in Indo China and Siam outbreaks have been observed during the year Minor prevalences have also been recorded in the Straits Settlements, Japan, China, and the island of Formosa, also in Persia, at the port of Mohammerah, near the Turkish frontier

Plague in Africa

In Egypt some 1700 cases were notified up to the middle of November, and in Tripolitania an outbreak occurred among the Italian troops near the town of Tripoli At Rabat, a port on the coast of Morocco, some cases were reported In the Union of South Africa early in the year plague appeared in the Orange Free State in the districts of Hoopstadt and Winburg Among the Europeans who fell victims to the disease was Dr PAUL A GILLESPIE a medical practitioner of Winburg, who died on March 24th In October another outbreak occurred in Cape Colony in the Uitenhage district, 25 miles north west of Port Elizabeth among the native population. In Uganda plague appeared in October at Kampula and in the East Africa Protectorate at Nairobi where 45 fatal cases resulted two being Europeans Plague has for some years been prevalent in Mauritius but it now appears to be subsiding, for during the year only five cases came under official observation

Plague in the Western Hemisphere

Brazil had little reported plague during 1916 only a few cases being notified at the ports of Bahia and Pernambuco In the Argentine plague was prevalent in the province of Cordoba early in the year, about 50 cases being observed, and in the autumn the disease reappeared at Villa Urquiza not far from Buenos Aires, but to what extent was not known, as the local authorities refused information Plague was officially reported in Chili at Antofagasta, Tacna and Mejillones during the spring and was stated in June to be spreading along the coast The disease was reported about midsummer to be increasing in Peru, especially at the port of Paita, and at least seven departments of the Republic admitted a prevalence of plague within their borders One of the chief foci of plague in South America is the Republic of Ecuador, the capital of which is Guayaquil, known among American skippers as "the pest-hole of the Pacific," where about 640 cases were reported up to October Plague also occurred at other places in the interior of Ecuador There were no human cases of plague notified in the United States during 1916, but infected rats continued to be discovered from time to time at the port of New Orleans Some plague infected ground squirrels were also found in several counties in California from March up to July

---

PUBLIC HEALTH

Since the outbreak of war all branches of public health work have been carried on in circumstances of peculiar difficulty owing to the depletion of sanitary staffs occasioned by the large number of medical men, sanitary inspectors, and public health clerks, ordinarily employed by local sanitary authorities, who have gone on military service. The ever increasing demand for medical men in the Army has made it far from easy to maintain an efficient public health service throughout the country during the year 1916 By combining appointments it has been possible to release from their civil duties a large number of medical officers of health, tuberculosis officers and school medical officers for service in the Royal Army Medical Corps In some instances a medical officer of health has undertaken duty in one or more districts in addition to his own, in others a county medical officer of health has consented to carry on district work during the absence of the local officer, while lady doctors and general practitioners have filled many gaps created by the exigencies of war We learn from the Forty fifth Annual Report of the Local Government Board that, at the time when the report was issued, about 250 medical men holding whole time posts under local sanitary authorities were on service with His Majesty s forces and probably the number has increased since then It is, of course, the paramount duty of all persons in this grave national crisis to do what lies within their power to assist in winning the war, and an adequate supply of medical men for the Army is a matter of cardinal importance, local authorities and the public generally realise that the absence of so many highly trained sanitary officers from their civil duties is a serious matter, although the present depleted condition of the public health service has led to no serious increase in the incidence of infectious disease since the outbreak of war The fact reflects credit on the national sanitary administration, but affords no certain guarantee that this state of affairs will continue

Acute Infectious Diseases in the Civil Population

In the spring of 1916 small outbreaks of small pox occurred in South Wales, Lancashire, and in other parts of the country Energetic measures were taken by local authorities to limit these outbreaks, and by the end of June the prevalence of the disease came practically to an end During August and September plague appeared almost simultaneously at Liverpool Bristol and Hull, but the efficiency of the sanitary administration in these places prevented any general spread We have referred to this incidence of plague in England in another column as well as to the liability which now exists of importation of infectious diseases from the war zones in Europe and the Near East The diseases most likely to be thus introduced are typhus fever and small pox but, fortunately they have not so far given rise to trouble A considerable number of our soldiers suffering from dysentery and from typhoid infections have from time to time been sent home for treatment in this country The arrangements made by the military in coöperation with the civil authorities have however been successful in preventing any serious spread of these maladies to the home population The extensive prevalence of cholera in Turkey and the Near East gives rise to risk of its introduction into Britain In view of the circumstances outlined above we understand that a sanitary survey of the ports of England and Wale

is being carried out by the central health authority A similar survey was undertaken in 1892-93 when cholera threatened to gain a footing in this country, and two subsequent surveys were made in 1900 and 1907 respectively on account of the prevalence of plague These surveys gave a great stimulus to improvement in the port sanitary administration of the districts visited, and another survey at the present time appears to be peculiarly opportune

When in August last epidemic poliomyelitis assumed alarming proportions in New York and in other parts of the United States of America fear was expressed that the infection might be brought to this country and give rise to outbreaks here Such anticipations have not, however, been realised, for we understand that the incidence of the disease, which may be regarded as endemic in Britain, has been only slightly greater during 1916 than in the previous year There was however, an epidemic of the malady in the city of Aberdeen, where the disease has been prevalent since July, and some 79 cases have been notified In Ireland also cases have occurred during the summer and autumn, among other places, in the union of Castlerea, in Claremorris and Carrickmacross, while there was a small outbreak in county Cavan

With regard to cerebro-spinal fever, though still widely prevalent, there have been fewer cases this year among the civil community than there were in 1915 In certain districts scarlet fever continued to have a high rate of prevalence, but the type of the disease was mild for the most part There was also considerable prevalence of diphtheria in a number of areas

Health of the Home Forces

We understand that the health of the troops stationed in or undergoing training in this country during the year has, upon the whole, been excellent The military authorities are to be congratulated on the manner in which they have dealt with cerebro-spinal fever which last year threatened to become a serious scourge in the Army Much useful work has been done in the detection of cerebro spinal fever "carriers" by means of bacteriological investigation, and considerable advance has been made in our knowledge of appropriate methods of treating these "carriers" so as to render them free from danger to themselves as well as to those with whom they associate Owing to the exigencies of military service the problem of preventing the spread of this disease is in some respects more difficult among troops than among the civilian population the men being gathered together under conditions peculiarly liable to facilitate the conveyance of infection from person to person It is satisfactory to know that during 1916 the incidence of cerebro-spinal fever among the home forces has been less than last year The number of cases of measles and German measles has been perhaps, a little surprising as these affections are generally regarded as ailments of childhood rather than of adult life but it is probable that a large percentage of the soldiers attacked may have come from rural districts where there has been little prevalence of these diseases Scabies has given rise to a good deal of trouble but has yielded to the curative and preventive methods employed

The Control of Venereal Diseases

Perhaps the most important event of the year in the public health world was the issue by the Local Government Board of the Public Health (Venereal Diseases) Regulations 1916 which provide that the council of every county and county borough (1) shall subject to the approval of the Local Government Board make arrangements for enabling any medical practitioner practising in the area of the council to obtain at the cost of the council, a scientific report on any material which the practitioner may submit from a patient suspected to be suffering from venereal disease and (2) shall prepare and submit to the Local Government Board a scheme (a) for the treatment at and in hospitals or other institutions of persons suffering from venereal disease and (b) for supplying medical practitioners with salvarsan or its substitutes 75 per cent of the cost incurred by local authorities in carrying out approved schemes is to be repaid from Imperial funds A memorandum by the medical officer of the Local Government Board on the organisation of measures against venereal diseases on the lines laid down by the Royal Commission was also issued

The recommendations of the Commission have not been universally accepted without criticism In certain quarters, for example, it is contended that compulsory notification of venereal diseases is essential to the success of measures directed toward their prevention, while in others such a course is strongly deprecated The opinion has also been expressed that the treatment of these diseases by druggists and persons not qualified to practise medicine should have been made illegal and, in view of the extensive prevalence of this most undesirable custom, drastic action for its repression seems to be called for Of course, the whole problem of the prevention of venereal diseases is one of much difficulty, but the work contemplated in connexion with the Public Health (Venereal Diseases) Regulations, though, perhaps, not as complete or entirely satisfactory in character as some could have wished inaugurates a new era, the Government has at last awakened to the importance of the subject and is determined to do something toward mitigating an evil which has been far too long neglected Considerable progress has already been made in the preparation of schemes, and nothing but good can result from the efforts of the general hospitals, the pathological laboratories, and the public health service working in unison

Some Points in Public Health Administration

With the view of preventing men suffering from tuberculosis being admitted into the Army a circular letter was issued by the Local Government Board on May 6th, 1916 urging local authorities to allow their tuberculosis officers to assist the military authorities in the examination of recruits and in such other ways as may be desired Regulations were also issued on May 13th, 1916, requiring every medical officer of health, during the continuation of the war to send to the Army Council periodically lists containing the names and other specified particulars of all male persons of certain ages who have been or may be notified as suffering from tuberculosis The regulations provide that all information received in pursuance thereof shall be regarded by every person who may have access thereto as confidential

In a circular letter dated Sept 23rd the Local Government Board draws the attention of county councils to the fact that the duties of health visitor inspector of midwives, tuberculosis visitor and sometimes also those of school nurse and mental deficiency visitor may often be carried out by one individual officer thus economising time and travelling expenses and securing uniform medical supervision. Work in connexion with child welfare and maternity appears to be making satisfactory progress throughout the country In Part III of the Forty fifth Annual Report of the Local Government Board it is stated that nearly 400 whole time and over 600 part time health visitors have now been appointed by local authorities, while over 300 municipal centres and more than 350 voluntary centres have been established

ANÆSTHETICS

Dr CRILE's elaborate theories on the nature of anæsthesia have been expounded in various contributions to medical journals His experiments are not unquestioned [1] nor has he met the two controverting facts that while on the one hand alkalinity does not remove anæsthesia, acidosis commonly occurs without provoking it Coma is not synonymous with anæsthesia Still all Dr CRILE's work provokes thought Geheimrath Professor BARNHARD KROENIG,[2] working with Dr P W SIEGEL (Freiburg) asserts that CRILE's anoci association—i e, (1) blocking all entrant stimuli, (2) suppressing post operative pain—can be obtained by paravertebral anæsthesia with hypodermic injections of scopolamine and narcophine He also dusts the traumatised surfaces with a powder called anæsthesin His plan is to seek for and inject the intercostal nerves according to the area of operation He regards the viscera as insensitive Gynæcological—i e pelvic—operations he admits are less easily dealt with by his method The after pain appears not to have been abolished in his cases Dr BRANSFORD LEWIS[3] and Dr L BARTELS extol sacral analgesia in genito-urinary surgery The latter appears to find access to the canal easy in even old subjects but this is not

[1] THE LANCET 1916 i 573
[2] Surg Gyn and Obstet November 1916, p 522

the usual experience He warns against wounding veins and piercing the membranes, accidents not always easy to avoid Although his cases are few, he claims that upon the whole the method is valuable for prostatectomies, bladder, urethral, and even rectal operations Dr C L HOAG and Dr I WEBSTER and Dr W LYND have met with success in applying "anoci association" to parturition They claim that perineal injections lessen rigidity, and scopolamine injected during the first stage assists without being deleterious to mother or child

Dr R W KING[4] reports 100 cases of labour in which novocaine and adrenalin were used He regards superficial after sloughing of the labia as unimportant THE LANCET[5] considers as a grave danger the recent propaganda in favour of GAUSS s Dammerschlaf method (twilight sleep in labour) in the lay as well as the professional press It sums up the evidence and considers that without strict precautions the method is fraught with serious danger In our columns and elsewhere many papers have appeared upon the use of spinal analgesia for operations involving the Trendelenburg position[6] There appears, however, to be some disagreement in the technique employed—e g , some surgeons extol the use of light, others that of heavy fluids (Barker's) for injection Some writers advocate the dorso lumbar site for puncture Dr KNIGHT[7] gives statistics of fatalities under spinal analgesia. These evince a striking disparity Strauss, 1 in 3500 , McCardie (collected from various sources), 1 in 826 , König, 1 in 200 , Thomaschewsky, 1 in 17,847 The employment of a mixed method, spinal analgesia and general anæsthesia, has been rather widely adopted for operations involving great shock, e g , Wertheim's, the abdomino-perineal, removal of rectal carcinoma Many complicate the procedure by also injecting scopolamine morphine and infusing saline, so that it is impossible to estimate to which factor the good results claimed are due A paper by Dr J F BALDWIN[8] produces striking statistics of fatalities occurring under nitrous oxide and oxygen used in major surgery Although extremely safe in brief administration he regards this anæsthetic as very dangerous in prolonged cases, although he admits its value in skilled hands within a limited field Dr R O CRAWFORD[9] points out that if the air passages are kept patent by a respiratory tube danger is prevented

Much useful work has been done in the Section of Anæsthetics of the Royal Society of Medicine during the year *Inter alia*, the subjects of the value of warmed anæsthetic vapours, the composition of the vapour under an (?) "open ether" mask, and the treatment of circulatory failure by heart massage, were discussed Similar valuable investigations have been carried out by the American Society of Anæsthetists, and this body has issued a useful year book.

THE ROYAL NAVAL, ARMY, AND INDIAN MEDICAL SERVICES

Royal Naval Medical Service

In spite of the incessant and strenuous active service of the Royal Navy during the past year a considerable amount of scientific investigation has been accomplished by its medical officers Two especially valuable researches have been those of Staff Surgeon HARDY WELLS on aeroplane injuries and diseases, an entirely new field for medical and surgical investigation, and an inquiry into the spread of trematode diseases especially with reference to *Schistosoma japonicum* in the Far East by Staff Surgeon E L ATKINSON

No changes of importance have occurred in the higher personnel of the Naval Medical Department nor in the conditions of service Never in the history of our country has the Royal Navy occupied a higher place in the regard and affections of the nation, which is well aware of its obligations to the service, while to the medical staff is due its full share of this debt of gratitude

The list of losses by death is not a long one, apart from casualties occurring on active service Fleet-Surgeon JAMES MOWAT, after 20 years' service in the Royal Navy, retired, but on the outbreak of war returned to duty, and was appointed to the *Hermes* she was sunk in 1914, and Fleet-Surgeon MOWAT'S work in attending to the wounded was mentioned in despatches He was invalided for shock, caused by the disaster, but last year joined the Royal Army Medical Corps as Major, and was on his way to the Dardanelles in the *Royal Edward* when she was sunk.

Army Medical Service

The opportunities for advancement of scientific research have been restricted in many directions, but the large field of observation afforded by active service operations on an immense scale has yielded very considerable results that in due time will be placed on record. Apart from this, some valuable researches on the mode of spread of amœbic dysentery and the life-history of pathogenic amœbæ and other protozoa have been carried out and published by Captain DAVID THOMSON, R A M C and Captain GORDON THOMSON, R A M C , in Egypt, and on the cultural characters and differentiation of the typhoid coli group of organisms by Captain H L TIDY and Lieutenant I P S DUNN, R A M C , at the Army Medical College

Owing to the unprecedented conditions arising from the war it was decided in the early part of 1915 to duplicate the office of Director General, Sir ARTHUR SLOGGETT, the existing head of the medical service of the Army, becoming Director General of the Expeditionary Force, while Sir ALFRED KEOGH, who had been Director General up to 1910, and who was in 1915 acting as Chief Commissioner for the British Red Cross Society in France and Belgium became Director General of the Army Medical Service at home Early in 1916 Surgeon General Sir W BABTIE, V C , who had been Director of Medical Services in India, and subsequently in Egypt and the Mediterranean, was brought home to assist Sir A KEOGH, especially in regard to the supervision of invaliding and questions connected with the medical care of the troops at home The enormous increase of the strength of the Army and the multiplicity and urgency of the requirements as to accommodation, sanitation, and organisation rendered this innovation absolutely necessary In October Surgeon General T J O DONNELL, C B , was appointed Director of Medical Services in India

For the rest, the work of the service is written in the history of the war

Indian Medical Service

An important step in the advancement of scientific research in India has been taken by the establishment of a hospital for tropical diseases in Calcutta, the foundation stone of which was laid by Lord CARMICHAEL, Governor of Bengal, in February, 1916 There will be over 100 beds, with complete equipment for pathological research in connexion with the Calcutta School of Tropical Medicine The first Director of the school is Sir LEONARD ROGERS, to whose energy and persistence its establishment is largely due

Surgeon General Sir C P LUKIS, K C S I , Director General, I M S , was appointed to act as Director of Medical Services in India (the officer formerly known as Principal Medical Officer, H M Forces in India) in April, and, resulting from this, Colonel H HENDLEY, I M S , was appointed to act as Director General, I M S The control of the whole medical service, civil and military, is now vested in one officer, presumably for the duration of the war An important step has been taken by the promulgation of an Order in Council by the Secretary of State for India that the President of the Medical Board at the India Office shall also be Medical Adviser to the Secretary of State This will lead to a considerable increase in the responsibility and influence of the holder of the office, who at the present time is Sir R HAVELOCK CHARLES

The Indian service has sustained severe losses by death during the past year, though we mention specially two names only Sir GEORGE SCOTT ROBERTSON K C S I , had an adventurous and varied career He served in the Afghan War of 1879-80 and in the Hunza Nagar Expedition of 1891-92 , he was sent on various political missions to the Indian frontier tribes, and in 1895 was besieged in Chitral, where he was severely wounded He was subsequently political agent at Gilgit and on retirement entered the House of Commons Lieutenant-Colonel G M J GILES, of the Bengal Service, served in the Zulu War was Surgeon Naturalist in the Indian Marine Service and accompanied Sir WILLIAM LOCKHART in his exploration of the Pamirs He was author of several works on tropical medicine and climatology , at the beginning of the war he joined the Canadian Army Medical Corps

[4] Surg Gyn., and Obstet November p 615
[5] THE LANCET 1916 II 609
[6] See THE LANCET 1916 I 1169 1277 II 78 645 Also paper by John Morley Oct 21st Surg Gyn and Obstet. I 955 et passim
[7] Amer J of Obstet and Dis of Women and Children June
[8] Medical Record July 29th see also THE LANCET, 1916 II , 566.
[9] Amer Med Assn., I 799

DENTAL SURGERY

During the past year the attention of the dental profession has been mainly directed to problems arising out of the war The position of those liable for military service has been one of anxiety Those possessing medical qualifications have been able to obtain commissions in the Royal Army Medical Corps, but those only possessing the dental licence have not always been able to obtain commissions as dental lieutenants, with the result that many have had to pass into the combatant ranks—a condition of affairs which serves as a conspicuous example of the great waste of skilled labour in the conduct of the war

Gunshot Injuries of the Jaw

During the year fresh centres for the treatment of gunshot injuries of the jaw have been formed with apparently most satisfactory results The treatment of these injuries has excited keen interest and two important gatherings have been held in this country to discuss the problems involved in treatment. The first, in the early part of the year, was a special meeting of the Odontological Section of the Royal Society of Medicine, the second, and the more important, was held in the summer under the control of the British Dental Association The various dental journals have also contained numerous papers on the treatment of the fractured jaw In the majority of the papers stress has been laid upon the necessity of reducing the fragments until the teeth are in correct occlusion the authors apparently being satisfied in many cases with fibrous union Various types of mechanical apparatus have been described with a view of attaining ideal occlusion Of these papers perhaps the most complete was that published by Dr O RUBBRECHT, of Ghent [1] who described the technique employed in nine cases and gave illustrations of the condition before and after treatment Mr C H. BUBB has also published a paper on some technical details in treatment He states that he is able to control the posterior fragment, even when edentulous, with an extension of soft rubber or gutta percha to a fixed metal splint, but no record is given of cases treated In a paper published in the April number of the *Journal of the Royal Army Medical Corps* Mr J F COLYER drew attention to the advisability of obtaining osseous union whenever possible and pointed out that the malocclusion of the teeth which follows in some cases can easily be remedied by properly constructed dentures In his paper he showed the great importance of removing the teeth in connexion with the fractured area, and supported his contention by a record of cases He also advocated that the teeth in the region of the fracture should be removed as a routine practice. An interesting series of papers on patients treated at the American Ambulance in Paris has been published in various issues of the *Dental Cosmos*

Mr J LEWIN PAYNE in a paper read at the Royal Society of Medicine on Feb 28th, suggested the following classification of injuries of the mandible founded upon the clinical aspects of the injuries (1) Fractures of the mandible without displacement of the line of occlusion, (2) single fractures of the mandible with lateral displacement, (3) single fractures of the mandible with vertical displacement, (4) two or more fractures of the mandible with loss of substance, (5) gunshot wounds of the maxillæ, (6) fractures involving loss of the anterior portion of the mandible the maxillæ or of the whole of one side together with the soft tissue adjacent

In the *British Dental Journal* of Oct 2nd Dr V H KAZANJIAN published a valuable paper on the immediate treatment of gunshot fracture of the jaws The paper was carefully thought out and well illustrated

[1] Belgian Dental Journal Oct 16th

FORENSIC MEDICINE

Throughout the year now drawing to its close the war has had the effect of checking legislation and litigation and of preventing publicity being given to the reports of cases coming before the various courts of law except where the subjects dealt with or the persons concerned are considered to be of general interest A few typical cases in this category are mentioned below in some detail On the other hand the annual report of the Medical Defence Union issued in the autumn showed that its legal business with regard to the affairs of medical men has been largely increased owing to the war The enforced absence of practitioners on war service has caused questions to arise with regard to many matters, such as the carrying out or varying of partnership deeds, the grouping of practices, and the employment of locum tenents Medical men have also required advice in connexion with their service under the Crown, and when on active service abroad have had to consult the London and Counties Medical Protection Society or the Medical Defence Union as to the conduct of their affairs at home

The Acts of Parliament which have affected the medical profession during 1916 have chiefly been those relating to medical service in the war, which can hardly be regarded as within the sphere of forensic medicine The Midwives (Scotland) Act, passed in 1915 came into force on Jan 1st 1916, it follows the general principles of the Act relating to England but introduces an innovation in permitting a midwife to grant certificates when these are required in connexion with maternity benefit by Approved Societies or Insurance Committees It provides also for the payment of medical men summoned by midwives to attend when special emergencies arise

Curtailment of the Duties of Certifying Surgeons

In accordance with a recommendation of the Committee on Retrenchment and Reform the Factory Department of the Home Office announced that on and after Sept 4th it would not be necessary for the occupier of a factory to notify an accident to the certifying surgeon, under Section 8 of the Police, Factories, &c. (Miscellaneous Provisions), Act, 1916

Heat-stroke as an Accident

The Court of Appeal had before it the case of Pyper v. The Manchester Liners, Limited, in which the representatives of a stoker who had died of heat-stroke in the Red Sea claimed against the owners under the Workmen's Compensation Act The court distinguished the case from that of Ismay, Imrie, and Co v Williamson, holding that the latter did not go so far as to make all cases of death by heat-stroke in ships stokeholds "accidents" and that there was not in that case, or in those in which it had been followed, "a voluntary submission to a well known normal cause affecting the greater part of the crew and known by the deceased to be likely to affect him"

The Property in a Prescription

In the Honiton county court a firm of druggists was sued by a lady and her husband for whom they had made up a prescription given to the wife by her medical attendant The medical practitioner had arranged with the druggists that they should not return his prescriptions to his patients. The county court judge held that no property in the document had passed to the plaintiffs, as the prescription had only been handed to them in order that they might convey it to the druggists instead of the medical man sending it to them himself Judgment was accordingly given for the defendants

Medical Practitioners' Fees

A medical man recovered a sum of £18 for fees for attendance upon the members of the Juvenile Oddfellows Society The defence was that the fees in question were in respect of members whose subscriptions were in arrear, and that it was for the medical practitioner to ascertain whether his patient was entitled to attendance at the Society's expense. For the plaintiff it was contended that it was for the Society to inform him when subscriptions were in arrear and that when he had made his agreement with it an arrangement had been entered into to disregard short periods of non payment of subscriptions His honour Judge GYE (since deceased) gave judgment for the medical man with costs on the higher scale A claim for fees for medical attendance upon an insured patient was successfully made by a medical man at Liverpool the defence being that as the patient was on his panel list of patients and had been attended as such no fee could be recovered It was however given in evidence that the patient had been removed to a nursing home at a distance from the doctor's residence and that he had been specially requested by her husband to continue his attendance upon her The county court judge held that it was unreasonable to think that visits at such a distance would be made without charge and that the medical man was entitled to recover for them

Medical Men and Declarations for Passports

Medical men are not infrequently approached with a view to their helping to obtain passports for persons with whom they are at best but slightly acquainted Knowingly

to make a false declaration on such an occasion is a serious offence and a medical man in London, who was acquitted upon a charge of signing such a declaration, only escaped conviction because having personally questioned the applicant for a passport he could hardly be said to have no personal knowledge of her He had acted in perfect good faith at the request of a patient, but nevertheless the person for whom he accepted responsibility was afterwards sentenced to a long term of imprisonment under the Defence of the Realm Act

Bogus Practitioners

The absence of medical men from their practices through war service and the demand for medical practitioners to undertake civil and military duties have been taken advantage of in several instances by impostors Among these H J HERRING, an unqualified person who several years ago was sentenced to five years' penal servitude for manslaughter committed when personating a medical man, was sentenced to four years' penal servitude at the Central Criminal Court for bigamy and for feloniously giving death certificates He had personated a medical practitioner, Mr E K HERRING, practising in New South Wales, and so obtained a post as locum tenens

R v Burdee Manslaughter by an Unqualified Person

In the case of an unqualified person, who was sentenced to 12 months' imprisonment for the manslaughter of an elderly woman, to whom he had applied a so called "cold water cure," Mr Justice DARLING said that if a person, whether a qualified practitioner or not, professed to deal with the life or health of any person, he was bound to have competent skill to perform the task The convict had held himself out as qualified to perform certain work, and he was bound to treat his patients with care and attention

CHEMISTRY

The war has set back pure science for a while in this country, but it has given a very decided and welcome stimulus to the application of scientific knowledge to pressing practical affairs The scientific staffs at our universities and schools, hitherto engaged on academic work, have, to a large extent, been transferred to work of immediate national importance and in consequence there is little to report in regard to pure research Many interesting theoretical questions must perforce remain in abeyance, but the union of workshop and laboratory has been effected

It is being very generally recognised that the future of scientific industry can only be secured by greater progress in organisation and by coöperation amongst the various manufacturers engaged in it, added to which there must be an important development in our system of technical education so as to increase the efficiency of labour and its scientific management There must, however, be State assistance in this matter, chemistry in particular requires just the sort of support that is forthcoming at the present time in the prosecution of research aimed at replacing so many essential materials hitherto exclusively supplied by the enemy Good progress here is being made in the dye industry and many colouring matters formerly made abroad have now been successfully prepared Again considerable advances have been reported in the manufacture of synthetics, and particularly of drugs and medicinal agents The university and the factory have combined most usefully in this direction, while several well known firms of manufacturing chemists have given determined and successful attention to the elaboration of fine products which were hitherto enemy monopolies The following substances may be mentioned the salicylates, including aspirin, the organic arsenic derivatives used in syphilis, phenacetin, homatropine, pilocarpine, glycerophosphates, benzamine derivatives, hexamine adalin, benzidin, allantoin beta naphthol, formaldehyde, resorcin, hydroquinone, chloral amide, cotarnin, ichthyol, and eau de Cologne To these may be added lanoline which is now prepared in this country, the product satisfying the requirements of the British Pharmacopœia and, in fact, reaching a higher standard than that laid down There is thus nothing wrong with British effort and brain, and such achievements must receive our admiration, but these gains can only be retained by a national determination to support British enterprise We were unprepared for the war, we must be prepared for the fierce economic struggle which is almost certain to succeed peace

CONTRIBUTIONS FROM "THE LANCET" LABORATORY

Throughout the year the total number of articles reported upon in our analytical columns was 37, involving just a hundred analytical determinations In the monthly records of atmospheric pollution, published as soon as possible after the returns from the various stations have been received, the analyses made in THE LANCET laboratory for the Meteorological Office amounted to 130 In a special article entitled "Paraffinum Liquidum the B P Standard Ignored," published in our issue of August 12th, it was pointed out that certain American oils were being imported into this country which were not refined to the extent that is desirable for medicinal purposes as an intestinal lubricant While these, according to examination, did not exhibit fluorescence, colour, odour, or taste, they were below the wide limits laid down in the British Pharmacopœia in regard to specific gravity Moreover, their viscosity was so low as to exclude them for the purpose of effectively lubricating the intestinal tract. In connexion with this inquiry 17 analytical determinations were made, the total number of laboratory analyses carried out during the year being 274 It may be added that the large increase in the cost of chemical reagents is seriously handicapping analytical operations in all laboratories, while in some cases the reagents are unobtainable

HONOURS TO MEDICAL MEN

The honours which have been bestowed upon members of the medical profession in connexion with the war will be found recorded in our columns from week to week during the year We give below however, a list of the New Year and Birthday Honours, though here also services in connexion with the war are included

Among the newly created knights in the New Year list were Sir GEORGE A BERRY Sir THOMAS WRIGHT PARKINSON, and Sir MILSOM REES C V O A knighthood was also conferred upon Dr RAI KAILASH CHANDRA BASU BAHADUR, of Calcutta Surgeon General Sir JAMES PORTER R N and Temporary Surgeon General Sir WILLIAM WATSON CHEYNE, R N, were made K C M G 's, and Surgeon General GUY C JONES, Director of Medical Services to the Canadian Expeditionary Force, a C M G To the Order of the Indian Empire were appointed as Companions Dr JOHN ANDREW TURNER, Lieutenant-Colonel ROBERT CHARLES MACWATT, I M S and Dr SURESH PROSAD SARBADHIKARY, of Calcutta In the Order of the Bath Fleet-Surgeon A GASKELL R N, Surgeon General W H NORMAN R N, Temporary Surgeon General H D ROLLESTON, R N, and Colonel W W WHITE, I M S, received Companionships, in the Royal Victorian Order Surgeon General Sir ANTHONY A BOWLBY was made a Knight Commander, and Staff Surgeon ROBERT JOSEPH WILLAN, R N, a Member

The Birthday list included the names of Dr CHRISTOPHER ADDISON M P who was made a P C Those receiving knighthoods were Sir ARMAND MARC RUFFER, C M G and Sir NESTOR TIRARD Dr FREDERICK MONTIZAMBERT, I S O Director General of Public Health of Canada, was awarded a C M G, and Fleet-Surgeon E C LOMAS R N, D S O Surgeon General J J DENNIS, R N, Colonel A P BLENKINSOP, Assistant Director General A M S and Major P S LELEAN were made C B 's Dr NOEL BARDSWELL and Dr FREDERICK HEWETT were made members of the Fourth Class of the Victorian Order In the Indian List Major F N WHITE, Assistant Director General, I M S Lieutenant Colonel J JACKSON, I M S, and Captain A. G J MACILWAINE, R A M C, received the C I E and Mr H M NEWTON Dr R G ROBSON, and the Rev PETER CULLEN Brigade Surgeon Lieutenant-Colonel, I M S (retired) were awarded the Kaisar i Hind Gold Medal

GENERAL MEDICAL COUNCIL

Each of the two sessions of the General Medical Council during the year was short in duration, but at both important proceedings took place mainly in connexion with the conditions produced by the war The maintaining of the supply of practitioners sufficient for the needs of the country while the calling up of junior medical students under successive systems of recruiting was going on, has produced a position which the Council was bound to consider an anxious one In 1915 354 names in excess of the average of

the preceding five years were added to the Register, while there were also 500 medical students in excess of the same average, but Sir DONALD MACALISTER, the President of the Council, having the current figures before him, warned the Council that these became much less favourable as time went on During 1916 depletion was found to be growing marked in the three and four-year groups of students, as well as in the immediate entries A census of medical students in the various schools of the United Kingdom was published in the proceedings of the December session, which showed a large increase of women students At this meeting Sir DONALD MACALISTER reported to the Council that he had called the attention of the military authorities to the danger of further demands on medical students with the result that the Army Council issued orders that registered medical students not classed as "fit for general service" are now relegated to the reserve on condition that, while left to pursue their professional studies, they enrol themselves in an Officers Training Corps In regard to recruiting the members of the medical profession for the Navy and Army the Council communicated with the Admiralty, the War Office and the Central Committees established in England and Scotland for the purpose of assisting the Government and the medical profession and in this way coöperated in trying to secure the proper allocation of available medical men to the two Services In the work of the Professional Recruiting Committees certain members of the General Medical Council played an active part, so that the Council directly and indirectly has served well the interests both of the State and the medical profession in a matter of increasing difficulty

Among the penal proceedings of the Council there have been several cases which turned upon the issue by medical practitioners of irregular medical certificates There has been for some time a heavy demand on medical men for certificates, a demand which was increased by the National Insurance Act and further exaggerated by the war The signing of medical certificates now gives enormous trouble to the medical profession with no commensurate return, but the Council though quite aware of this point promulgated a definite warning that the giving of irregular medical certificates was a grave professional sin Medical practitioners are entrusted by the State with a responsibility carrying its obligations, those who are found faithless in discharging these obligations may expect now to be treated with severity

BRITISH MEDICAL ASSOCIATION

The work of the British Medical Association during the year has been largely concentrated upon the task of keeping the Navy and Army adequately supplied with medical practitioners without depriving the public of the necessary medical service The Central Medical War Committee, whose administration has been conducted through the organisation of the Association have taken measures whereby the calls upon practitioners to leave their civil duties and accept commissions have been rendered as fair as possible, and all the energies of the Association have been devoted to what has proved a difficult and delicate undertaking

At the annual meeting of the Association the scientific and social sides were very properly dropped on account of the war, while the business generally done was purely formal At the Representative Meeting held in London on July 29th some important subjects were discussed especially the arrangements shortly to come into force for the State treatment of venereal diseases A unanimous vote of the Representatives resolved that every local authority concerned in any plan for the diagnosis and treatment of venereal diseases should arrange for effective consultation at the early stages of the scheme with the local medical profession There seems no doubt that the opinion of the medical profession as thus expressed will be respected

THE PROFESSIONAL RECRUITING COMMITTEES

During the year three professional Committees were recognised by the War Office to deal with claims for exemptions made by duly qualified medical practitioners—namely the Central Medical War Committee the Committee of Referees of the Royal College of Physicians of London and the Royal College of Surgeons of England and the Scottish Medical Service Emergency Committee These bodies had already been utilised by the Government in arranging for the selection of medical men for service as doctors in the Naval and Military forces and in connexion with the work of the Central Tribunal, and their activities have been regularly chronicled in THE LANCET since their formation The Scottish Medical Service Emergency Committee, possessing a detailed knowledge of the medical men within its sphere of work was able from the date of its formation to render practical recruiting aid and to arrange for the carrying on by substituted service of civilian practices The task before the Central Medical War Committee was harder, and the Committee of Reference of the Royal Colleges took one important and delicate section of the work out of the hands of the larger body by dealing with the whole question of the exemptions that should be granted to medical men connected with the staffs of the London hospitals The medical profession in England and Wales has been submitted by the Central Medical War Committee to a continual analysis, assistance in this great undertaking having been given by the three great public departments directly concerned in the supply of medical men for civilian purposes—viz, the Local Government Board, the Board of Education, and the National Health Insurance Commission The work of the Committee has been carried on through the organisation of the British Medical Association, and has grown steadily harder as the calls of the Army increased with the prolongation of the war At the end of the year the work of the three Committees received a great impetus from the declaration made by Mr LLOYD GEORGE in his speech in the House of Commons on becoming Prime Minister in which the intention of the Government was stated to use all the man power of the country to the best advantage for the prosecution of the war The Prime Minister's words suggested that the mobilisation of the medical profession for purposes of the war, a movement which had already received support when the principles involved were debated at the Central Medical War Committee, might become the policy of the State The work done by the three Committees has been directly preparatory to such a course, and, whether mobilisation follows Government action or arises out of voluntary effort, it may fairly be expected to proceed on similar lines in either event Facts and figures in mass and detail, have been collected by the Committees which ought to ensure the burden of mobilisation being fairly borne by the whole constituency although it may be easy at the present moment to produce examples where the reverse conditions prevail

THE MEDICAL RESEARCH COMMITTEE OF THE NATIONAL HEALTH INSURANCE COMMISSION

The work of the Medical Research Committee throughout the year has been large and strenuous, as was proved by the second annual report published at the close of the year The Committee have obtained the complete record of every man in the Army who has been invalided from any cause from the time of his being wounded or being taken ill. The registers of 2000 military hospitals have been laid under contribution to this end a uniform card system having been adopted by each institution While most of the funds and scientific resources of the Committee have been devoted to medical questions of immediate national urgency, certain pre war work—that in connexion with tuberculosis and rickets for example—has been carried on, while physiological research has been conducted in connexion with such varied problems as are presented by factory hygiene, poison gases and trench foot to mention only three directions of the activity displayed. Assistance has been given by the Committee to an organised inquiry into fatigue in factories and the information gained formed the basis of action for the Committee on the Health of Munition Workers when framing measures for the benefit of the workers The physiological testing of salvarsan and its similars of French and British origin has also been undertaken, this is a task which will be of assistance to various State supported schemes all over the country for the control of venereal disease The value of the work of the Medical Research Committee is not uniformly recognised Many of the scientific communications made to the Committee have appeared in our columns during the year

THE LANCET, VOL II, 1916
THE INDEX

THE Index and Title page to the volume of THE LANCET completed with the issue of Dec 30th will be ready early in the New Year Owing to the continued shortage in the paper supply, the Index will not be issued with all copies of THE LANCET, as was the custom prior to the War Subscribers who bind up their numbers are requested to send a post card to the Manager, THE LANCET Office, 423, Strand, London, W C, when a copy of the Index and Title page will be supplied free of charge

TUBERCULOSIS REPORTS

Kent County Council —The report from Kent is full of interest, and it is satisfactory to find that it has been possible to continue in full use the whole of the 20 dispensaries In a scattered population the dispensary system is certainly the backbone of any efficient scheme for dealing with tuberculosis To be regretted is the tardy and insufficient institutional accommodation for uninsured persons, but this defect is recognised and is being remedied Special conditions have delayed the opening of the new sanatorium, but the small hospital at Keycol Hill has proved a help in dealing with some advanced as well as early cases There are some very sound remarks upon 'domiciliary" treatment, and although it must take a large amount of time for the tuberculosis officer to visit these cases, it is a desirable thing to do in coöperation with the panel doctor The difficulty of providing extra nourishment has led to three "grades" being established, and 385 cases have been given extra food in one or other grade Apparently voluntary care committees have not yet been established to deal with this part of the work. They should be found a distinct help to an otherwise elaborate scheme

Borough of Middlesbrough —The tuberculosis officer is able to report that 65 per cent of cases who have been sent to sanatorium are now on full work. This certainly indicates that the cases are well chosen, and the method of recording results is a more practical one than that adopted by the Local Government Board There will always be differences of opinion as to whether the disease is "arrested," and even as to whether there has been definite "improvement" resulting from certain treatment, but the fact of the working capacity being restored is a definite and easily ascertained criterion There has evidently been sound coöperation with the school medical officers, and this augurs well for the work The tuberculosis officer, who is a real optimist, finds the dispensary work the most economical and satisfying part of his scheme

York City —The stages of the disease are classified somewhat on Philip's lines, showing the relative amount of local and systemic involvement This is a more scientific classification than Turban's, and the point is not purely an academic one, as many observers hold that a case where the local involvement is overbalanced by the systemic is not likely to do well at a sanatorium. A feature of the work has been the treatment of surgical tuberculosis in beds specially reserved at the County Hospital, and this probably solves a difficulty which many counties and boroughs are feeling, especially in relation to discharged soldiers Care committees have been established and have already tackled the question of boarding out children in the early stages of the disease, an excellent and economically sound procedure The tuberculosis officer reports the great need for accommodation for advanced cases

Borough of Walsall —It is rather disconcerting to find the definite increase in the death rate in this borough especially when lives are more valuable than ever, but the increase in the notification rate may really be a blessing in disguise The work is apparently hampered by the lack of accommodation for advanced cases, and an open air school which should be part of the practical scheme in a borough of any size, is also a desideratum

Paddington Dispensary for the Prevention of Consumption —The sixth annual report only brings the work up to the end of 1914 The dispensary is now part of the official scheme for dealing with tuberculosis in the borough, and is linked up with the other details of the scheme This has necessitated modifying some of the work in connexion with home visitation so as to prevent overlapping with the sanitary inspector's department The fact that there were 651 new patients in 1914 shows the continued need for such an institution The examination of contacts which has been a distinctive feature of the work at Paddington from its commencement, shows no falling off, and 344 contacts were examined in 1914, 50 of them being found to be definite cases of tuberculosis The importance of the contact examination is also emphasised by the fact that in 58 per cent of the children found tuberculous a definite source of infection in the home was discovered Philip's modification of Turban's classification is employed The dispensary has the advantage of a voluntary care committee and also of Kensal House Open air School, to which children are only admitted if the home conditions are good It would seem at first sight as though those with *bad* home conditions should be dealt with first, but experience has shown that it really does not pay to spend money on patients who are bound to return to conditions which must inevitably lead to relapse It is regrettable to find that the Poplar Open air School had to be closed through lack of funds The tuberculosis officer rightly pleads for more accommodation for advanced cases apart from the Poor law provision, and also for a farm colony in connexion with the work.

York Tuberculosis Crusade —The report of this association shows good work done, chiefly as a care committee coöperating with the dispensary Twenty six cases have been boarded out under good conditions, and extra food and clothing have been supplied to cases on the recommendation of the clinical officer The committee deplore the bad housing which renders so much of their work unsatisfactory, as do also all workers concerned with "domiciliary treatment"

Society for the Prevention and Cure of Consumption in the County of Durham —The work has been maintained at the two sanatoriums in spite of severe losses of personnel and a serious increase in the cost of maintenance, amounting to 4s 1*d* for men and 4s 10*d* for women and children every week. A regrettable feature is the fact that the selection of cases does not appear to have been so satisfactory as in former years The results naturally suffer and so does the usefulness of the work The use of tuberculin has gradually been given up, though it is not quite clear upon what grounds The difficulty of dealing with discharged soldiers who are disinclined to submit to discipline when once clear of the services is illustrated, most of them left within three weeks of their admission This is a disturbing feature at many sanatoria and one which may well receive consideration by the Government authorities

Hertfordshire County Council —Dr H Hyslop Thomson concurs in the now general view that the dispensaries must be the pivot of any county scheme, whether they are staffed by full time or by part time tuberculosis officers Tuberculin has been freely used, particularly T O A and B E, and has proved both safe and useful in dispensary practice Extra food has had to be supplied in 142 cases, and the County Nursing Association have very generously agreed to charge no fee for nursing insured persons, so that this extra food may be available Four care committees have already been started and eight are to follow thus providing an efficient means of keeping in closer touch with the patients in their homes The results of treatment are tabulated at the end of a particular course of treatment and not after an interval of time This method although apparently sanctioned by the Local Government Board, is unsatisfactory, in that no clue is given to the permanent value of the treatment indicated The need of accommodation for acute cases is felt.

Devon Insurance Committee —This is purely a lay report, and there is no comment by the tuberculosis officer It records the treatment given by the Insurance Committee to each case and the condition of the patient 6 and 12 months afterwards A large proportion of cases have apparently

been lost sight of, and the results are decidedly disappointing Without analysis by the clinical officer no fair judgment can be passed on the work in Devon, but the figure given of only 38 per cent improved does not seem on the face of it satisfactory Apparently the system of employing health visitors to visit all notified cases and keep in constant touch with the home conditions has not been favourably received in Devon, and the dispensary work is not so prominent as in many other counties

National Sanatorium Association —This report concerns the Association s Sanatorium at Benenden, Kent, which has lately been passing through a period of considerable difficulty Fortunately, prospects now seem brighter, and with the new and efficient staff which the association has been fortunate enough to obtain the sanatorium should continue to do good work. The financial difficulty has been felt acutely, and the committee justly plead for a larger measure of support for their work. Depending as they do almost entirely upon the working classes for financial aid, they have found it difficult to continue the work on broad lines A pathetic incident in the year was the receipt from Southampton of £62 towards the Post Office block as a memorial to the two Post Office officials who went down in the *Titanic* Dr A. Niven Robertson has reorganised the whole of the arrangements for treatment by rest and graduated exercises on the lines laid down by Dr Marcus Paterson which permit of a much more gentle and regular increase in the work done by each patient, and therefore, presumably, in the amount of auto-inoculation produced, than is possible with other methods A successful course of auto-inoculation requires to be as carefully graded and watched as a course of tuberculin inoculation, and this implies constant personal supervision from the medical officer himself. The tuberculins used have been T Bk. (Beraneck's), B E and P T O The use of Spengler s I K., carefully investigated recently by Dr Robertson, has been discontinued as the results were disappointing The cases are usefully classified upon Philip s method, and the results also stated in terms both of the local and the systemic infection Treatment by nascent iodine has been tried in 10 cases, and controlled by the Arneth count of white blood cells In all the cases considerable improvement appears to have resulted The sanatorium suffers from the disadvantage that, not being connected with a dispensary system it can neither select its own cases nor look after them when discharged, or the results of treatment would undoubtedly be better

National Association for the Prevention of Consumption — The council report that a special feature this year has been the compilation of a handbook setting out in detail the present position of the tuberculosis work undertaken by public bodies under recent legislation This they hope to keep up to date and it should prove a valuable guide to the whole question The association was also very active in voicing the demand for adequate treatment of the discharged tuberculous soldier and that the question was a serious one is shown by the fact that no fewer than 2770 were invalided out of the Army during 1915 for tuberculosis Dr S Jacob has continued his excellent work as a travelling lecturer, and has found ready audiences in spite of the war Reports are also given of a number of local branches of the association which are doing useful work

Loomis Sanatorium New York —There is a very elaborate report of the work done in this sanatorium and it is interesting to notice that although in a neutral country the price of food rose by 4 to 5 cents a day per head in 1915 The usual sanatorium routine has been carried out and about 10 per cent of the patients also received a regular course of tuberculin and in each case definite improvement resulted At the close of their stay about 36 per cent of the cases were reported as ' apparently arrested, and the after histories of former patients are carefully recorded Working capacity however, is not specially investigated, although the e re urned as ' in a satisfactory physical condition number over 60 per cent Further information would be of interest in this direction

Adirondack Cottage Sanatorium New York —This well known institution has had another successful year a new and interesting feature being the foundation of the Trudeau school for tuberculosis officers and specialists As the sanatorium has its own tuberculosis dispensary at Saranac Lake, clinical material is not wanting, and a fairly complete course of instruction can be provided A number of the pupils are medical men themselves suffering from tuberculosis, and the venture is a commendable one. A training school for tuberculosis nurses is also attached. The laboratory attached to the sanatorium has, as usual, done interesting work, and is now engaged in an investigation into complement-fixation in relation to tuberculosis, with a view to finding some way of distinguishing active from arrested disease. Another point of interest is the record that in four cases the Wassermann reaction was positive, and in each case salvarsan was given with good result About 1 in 8 of the cases were given tuberculin, and the results were satisfactory

ANNUAL REPORT FOR 1915 OF THE CHIEF MEDICAL OFFICER OF THE BOARD OF EDUCATION [1]

THIS annual Blue-book,[2] much reduced in size owing to the exigencies of war economy, contains in a compact form particulars of the school medical service and its administration, of the physical conditions of school children, their medical treatment in school clinics and hospitals the physical education of the child, and juvenile employment, with several appendices of statistical and official information

The School Medical Service and Its Administration

Sir George Newman, in his opening remarks, refers to the inevitable curtailment of the work of school hygiene owing to the circumstances of the war, but emphasises his conviction that it is now more than ever the imperative duty of the State to secure the health and physical efficiency of the coming generation by taking advantage of the unique opportunities which school medical inspection affords of nipping in the bud preventable disease He points out further that ' if we are determined to rear a healthy and virile race of high capacity we must, from a physical standpoint, begin earlier and continue later than the hitherto accepted period of education." He reports with satisfaction in regard to this desideratum that "a complete scheme is in process of building " 450 clinics for the treatment of diseases of school life have been established, and a beginning has been made in recovery and open air schools Special schools for the deaf, dumb blind, and lame also exist, but there is need for extension in this direction Above all, the condition of the child in its *individual* aspect must form the basis of its successful handling, whether by medical or by educational authorities

Reviewing the administration of the school medical service, it is pointed out that the need for retrenchment during the past year, from considerations not merely of public economy but of the paucity of medical officers available has of late necessarily limited its activities Progressive schemes have consequently had to be deferred or curtailed but continued attention to the established routine of work has been maintained notwithstanding the fact that the net loss in the number of school medical officers and their assistants approximates to about 12 per cent Special inquiries have been carried out on the suggested subjects of adenoids and malnutrition, as well as upon the condition of the teeth and the morbific relations of oral sepsis, and Dr W H Hamer, medical officer of health of the County of London has contributed two interesting researches, one on A Persistent Carrier of Diphtheria Bacilli, the other on the Prevalence of Fleas in Relation to the Incidence of Scarlet Fever

Following up ' has been carried on mainly by the school nurses and also by the children s care committees, who frequently assist parents to obtain material and medical aid when necessary for their children Special schools for blind deaf defective and epileptic children have, in spite of war difficulties continued their useful work and these numbered in 1915 403 as against 397 in the previous year, their aggregate accommodation being for 30 942 pupils,

[1] A leading article on this report was published in THE LANCET of Sept. 23rd, 1916 p 561

[2] London, 1916 Eyre and Spottiswoode Ltd Pp 159 – viii. Price 9d

2791 places being for blind, 4568 for deaf, 14 643 for mental defectives, and 5291 for those physically defective There were also 1626 for tubercular cases, 496 for epileptics, and 1527 in open air schools

No less a sum than £411,428 was expended in 1914–15 on the school medical service, on account of which a Government grant of £192,414 was paid Schools for mothers and day-nurseries also received grants from the Board amounting to £15,333 18s with a view to the training of the mother in infant welfare, and the right commencement of the training of the child in the habits and ways of health

Physical Conditions of School Children

Section II, on Physical Conditions, deals with the following categories (1) uncleanliness, malnutrition, and minor ailments, (2) defective vision and adenoids, and (3) heart disease and tuberculosis

Under the first heading a summary table is printed showing that in 40 educational areas (with average attendance of 1,091,431) of 380,891 children examined 84 6 per cent were reported clean as regards condition of body, 14 6 per cent as dirty, and 0 8 per cent with pediculi present, with slightly higher percentages of unclean heads This means that about 150,000 elementary school children in each million are unclean either in body or head, and many thousands of children are excluded from attendance at school daily on account of uncleanliness Consequently "a child habitually verminous is an uneducated child", and surely, as a matter of public policy, the universal provision of "cleansing stations" (as has been effected in London) is imperative

Amongst "minor ailments" are included cases of ring worm, one of the most prolific causes of loss of school attendance, and it is satisfactory to learn that "a number of authorities have done admirable work" in organising methods for its prevention and cure, including, of course, X ray treatment With regard to defective vision, attention is drawn to the much larger incidence of eye defects in urban as compared with rural areas, the percentage in the latter being only about 9, while in county boroughs it rises as high as 25 As these figures are based upon limited "sample" examinations they can hardly be accepted as final, and possibly the small proportion reported from the country may be due to inferior facilities for expert ophthalmic examination

Considerable space is devoted to the subject of adenoids, and a report by Dr Hamer is printed in full Here, again, the prevalence appears to be greater in urban than in rural areas, though the difference is not so marked as with eye defects It is stated that in 76 local education areas 309 637 children were examined and the percentage of those with adenoids was 3 7 and with marked adenoids 1 31 Dr C J Thomas is quoted as reporting the percentage of children, aged between 11 and 12, in elementary schools affected with adenoids as 4 7 per cent of boys and 5 4 of girls, as against 5 8 per cent of boys and 9 2 of girls in mentally defective schools, while amongst scholarship children of the same age the percentage was only 1 9 for boys and 2 2 for girls

Heart disease was reported in from 1 to 5 per cent of the children examined in 1915, but the chief medical officer seems to think that there is room for greater care and discrimination in this regard In this connexion a useful leaflet for parents on "The Control of Rheumatic Fever" issued by the school medical officer for Tunbridge Wells, is printed in the report

Some ten pages are occupied with the subject of tuberculosis in children. An elaborate table of the mortality at several ages (4 groups being under 15) from all causes and from tuberculous disease, 1907–15, has been furnished by Dr T H C Stevenson, Superintendent of Statistics and precedes one compiled from returns supplied by school medical officers from 1911 to 1915 The latter gives 0 46 as the percentage of tuberculosis found in 1915 in the routine examination of 272 618 children in 52 areas, about one third being cases of phthisis and a percentage of 2 46 found amongst "special cases" i e, cases specially selected as ailing in 19 areas Six open air day schools have been certified for phthisical children, who are also received at Parkhill Hospital Liverpool Four metropolitan hospitals, admitting children with surgical tuberculosis have been certified as day special schools by the Board, and 18 residential sanatorium schools in the country have also been certified

Medical Treatment —Physical Education of the Child

Section III deals with medical treatment, and of this the two fold object is stated to be (1) to remove obstacles to the normal and proper educational development of the child physically and mentally, and (2) to assist nature in bringing about the cure or arrest of disease The advantage of providing a system of medical treatment over leaving the matter to chance is insisted on, and it is stated that 279 local education authorities had such schemes in operation during 1915, either by arrangement with neighbouring hospitals or in the form of school clinics Dental treatment has been provided by 147 education authorities, and there are 55 whole-time dental officers

Section IV treats of the physical education of the child, the four principal means of obtaining this being stated to be (*a*) the teaching of hygiene and cleanliness, (*b*) the feeding of school children, (*c*) systematic physical training and (*d*) open air education

Under (*a*) it is pointed out that in order to inculcate hygienic principles as "a way of life" "there must be appropriate lessons in hygiene, combined with practical work by the children, and supervision of their own personal hygiene by the teacher" Lessons on food and drink and instruction in temperance form part of the scheme

With regard to (*b*), the findings of medical inspection indicate that about 10 per cent of nearly 6,000,000 children attending public elementary schools suffer from malnutrition and the paramount consideration seems to be that to secure proper physical and mental development the growing child must be sufficiently fed Questions of ways and means are rather for the public authorities than for the profession but it may be interesting to note that in the autumn of 1914 no fewer than 195,000 elementary school children were in receipt of free meals and that their number had declined to 22 615 by July, 1916 Grants made in aid by the Board depend, *inter alia* upon the extent to which the work is coördinated with that of the school medical service, with which it rests to suggest suitable dietary and to watch the effect on the children

(*c*) As regards systematic physical training it must be such as to promote the healthy growth and development of the children, without exaggeration or undue strain, the latter being mainly a medical question The same remark applies to organised games

(*d*) Open air life, wherever and whenever practicable is referred to by Sir George Newman as "the fourth essential condition of physical education" He describes various modes of securing it, and especially mentions the experimental playground classes and classes held in the public parks—a scheme, by the by advocated by Séguin in New York so long ago as 1877—with much approval, advocating a substantial advance in this direction It appears that so far only a score of education authorities have established systematic open air instruction

Juvenile Employment

The subject of juvenile employment is discussed in the last section (V) Owing to existing war conditions this is a somewhat thorny question, but it is the medical aspect that is prominent in Sir George Newman's remarks It is within the province of the school medical service to consider the physical condition of the child allowed to leave for employment before the age of 14 and to guard him from strain too often involved in labour prematurely undertaken by an immature youth

The chief medical officer deprecates the growing tendency to excuse from school attendance children not even 12 years of age for employment in agriculture as it would probably mean the discontinuance of further education In industrial employment and in munition making boys of 13 have been allowed to take part, but the Board of Education rightly insist that in these emergency cases it should be ascertained that the employment is of a character suitable to the physical capacity of the boy In this connexion are printed extracts from a very practical report by D T Chetwood, school medical officer for Sheffield in which particulars are given of the children exempted from school in 1915

In the closing page of his report Sir George Newman insists upon the necessity, in the public interest, of (1) general

examination of *all* leavers, (2) prompt and adequate remedy of defects discovered, and (3) close coördination between school medical officer, certifying factory surgeon, and juvenile employment committee As he truly remarks "The State cannot be true to its responsibility, unless it is watchful over the child both before it enters school, and after it leaves school"

The last annual report of the chief medical officer of the Board of Education has already been noticed in our columns and at all points it presents theories and facts worth attention and discussion—it must be read for their appreciation We congratulate him on the skill with which he has marshalled so considerable a mass of information, valuable alike to the medical profession, the educationist, and the social reformer, within a space less than half that occupied in previous reports

THE CONTROL OF VENEREAL DISEASES

Local Government Board Circular

ON a circular with attached memorandum and forms, dated Dec 22nd, and addressed to the councils of counties and county boroughs, the secretary of the Local Government Board draws attention to the prescribed records and returns for laboratories and treatment centres A system of case papers and registers is submitted for the consideration of hospital authorities Kharsivan, arsenobillon and novarsenobillon are mentioned as the salvarsan substitutes at present approved, and the price at which these drugs can be obtained by local authorities has been fixed at 5s for a dose of 0 6 gm for kharsivan and arsenobillon, 3s for the same dose in the case of novarsenobillon and smaller doses in proportion A uniform payment of 6d a packet is suggested to recoup practitioners for out-of pocket expenses in transmitting specimens to the laboratory The question of the liability of councils for the cost of treatment of patients at institutions not included in the scheme is also dealt with in the circular

Progress of County Council Schemes

Mr Hayes Fisher informed the House of Commons last week that 34 out of 146 councils had submitted schemes for the approval of the Local Government Board and in practically every other case the Board had received information that schemes were in preparation In a large proportion of these cases the negotiations with hospitals and other bodies were nearing completion

Dr W H Hamer medical officer of health of London, has issued further details of the scheme which we summarised in THE LANCET of Dec 2nd (p 954) A schedule is given of the days and times for attendance at the 22 hospitals (reckoning the male and female departments of the Lock Hospital as two) with which arrangements have been made In many cases the venereal clinic is open every day, and the times vary from 9 A M to 8 P M so as to suit every kind of occupation A series of eight leaflets, authorised by the Local Government Board, accompany the circular, fixing the form of application for pathological outfit or for arsenobenzol, the form of pathological reports, the instructions to be given to patients and the public in regard to personal precautions and the dangers of infection

The Derbyshire county council is arranging for treatment at the various hospitals in the county and at a clinic to be established at Chinley boards of guardians to deal with their own cases Two medical men, Dr G K. Smiley and Dr Albert Green were coöpted on to the Public Health Committee to assist in administering the scheme A conference at the Swansea Hospital was recently attended by representatives of the county councils of Brecon Carmarthen, Glamorgan Pembroke and of the Swansea Health Committee The infirmary board of the North Riding of Yorkshire has expressed its willingness to administer a separate hospital for venereal diseases but not to provide a clinic The Portsmouth town council are approaching other councils throughout the country with a view to bringing concerted pressure on the Local Government Board to prohibit the non medical treatment of venereal diseases

The Detection and Treatment of Contacts

Miss North March B Sc. in describing social service work in Boston U S A touches upon a point of great practical importance—viz, the moral obligation of each person infected with venereal disease of any kind to secure the examination and, if need be, treatment of the person from whom the infection was derived or to whom it may have been handed on Miss March writes "This would seem perhaps to be a difficult thing to do, less difficult however in cases of innocent infection, of which in the syphilis clinic at the Massachusetts General Hospital they have 40 per cent of their cases, than in cases which involved a personal problem But a scheme has been launched in one of the institutions which I visited whereby this effort has been attended with very considerable success The patient having had the nature of his complaint made clear to him and the possible serious consequences—personal and social—of neglected infection impressed upon him, is supplied with a certain printed form, which carries no name or identification mark upon it Any person coming to the clinic for examination and presenting one of these forms is accepted for examination *without any questions being asked*, and is thus relieved of all embarrassment At the time of my visit the figures given to me were that out of 300 forms which had been so given out, 290 had been returned to the hospital by persons presenting themselves for examination Education of the public in regard to the nature and the prevalence of syphilis and gonorrhœa is much more widespread than has been achieved in this country so far, there is more alertness in regard to possible infection and more readiness to seek advice in connexion therewith That will account, in part, for the somewhat surprising considerable response which has attended these efforts of the social service department"

Venereal Disease in Prisons

In their report for the year 1915–16 (Cd 8342 Wyman and Sons 2½d) the Commissioners of Prisons correct the inference which might be drawn from the report of the Royal Commission that no action had been taken in prisons to diagnose syphilis and give intravenous treatment The treatment, they state, is being administered at present in a certain number of prisons, and it is hoped shortly to complete a scheme of collecting all cases suitable to undergo the treatment at certain prisons as centres The Commissioners welcome the establishment of centres throughout the country where the treatment of short sentence prisoners can be efficiently continued on discharge and the admitted evil of their discharge while still in an infectious condition counteracted

Appointments at Guy's Hospital

In connexion with the Local Government Board and London County Council schemes the following appointments have been made at Guy's Hospital —Assistant to the Obstetric Surgeons, Miss Morna Rawlins, M B B S Lond, to the Dermatologist, Mr L S Gathergood M R C S, L R C P, to the Genito-Urinary Surgeon Captain G E Genge Andrews M B, B S Lond, Assistant Bacteriologist Miss Una Griffin, M B, B S Lond

THE POSITION OF DISCHARGED SOLDIERS UNDER THE NATIONAL INSURANCE ACTS

Memorandum 228/I C issued by the Insurance Commissioners (England, Scotland, and Wales) calls the attention of Approved Societies to the notifications which they are required to send to Insurance Committees of changes affecting the Committees Index Registers, and Circular 55/I C is a memorandum addressed to Insurance Committees explaining their duties with regard to the completion of their registers upon receipt of the necessary materials from the societies or from those who are not members of societies Stress is laid upon the importance of dealing with the whole matter as urgently important and of following exactly the instructions given The accuracy and completeness of the lists of the Insurance Committees and of the societies is naturally of the first interest to medical men on the panels but the circulars mainly concern the bodies to which they are directed, the responsibility for carrying out the instructions is laid upon the societies and they will be sufferers as well as the members of the medical profession and their patients, if confusion prevails At the same time no doubt, the depletion of their clerical staffs will render their task difficult

To medical men on the panels perusal of the two documents referred to will bring home the complicated nature of the task of reorganising during the war as well as the altered circumstances of panel practice The correction of lists in connexion with the removal from the registers of index slips relating to suspended persons, many of whom have enlisted is conducted under a modified procedure instituted with a view of reducing the work The reinstatement of persons coming back into insurance in order that they may obtain medical benefit, means for medical practitioners the duty of attending a growing number of patients who have been discharged from the Army as medically unfit It will be observed that the insurance committees have to deal with two main classes of insured persons seeking reinstatement—those who are members of societies, and those who are not—and that various conditions may affect the position of members of either class Among those who are not members of societies, for example, there will be some who have been discharged from the Army as medically unfit, and who have been insured during service These will be entitled to admission to benefits from the Navy and Army Insurance Fund, and arrangements are to be made at once for their medical benefit, a form forwarded to the Commissioners at Maida Hill who have the care of deposit contributors, is marked "Medical card issued" What relation the number of these will bear to those not discharged upon medical grounds is not, of course, indicated, but the medical profession will regret that in the case of these men, who may be expected to need medical care less frequently in the future as well as less urgently, a longer procedure is necessary, varying according to circumstances A man who has been a deposit contributor before enlistment will, indeed, be ordinarily entitled to medical benefit at once but the form forwarded on his behalf to Maida Hill will be marked "Medical card not issued," and his claim will be investigated in that department On the other hand a man who has only been insured when in the Army will also be dependent upon the decision of the Commissioners at Maida Hill and in any case will have to wait three months before being entitled to the modified benefits provided for a deposit contributor It is advised that to such men the advantages of joining an Approved Society at once and of so securing medical benefit without further delay, should be explained when they apply to an Insurance Committee

Experience alone will show how far the reconstruction of financial arrangements between the Insurance Committees and the medical profession will be necessitated by altered circumstances brought about by war

THE SERVICES

COMMISSIONS IN THE INDIAN MEDICAL SERVICE

IT has been already announced in THE LANCET that after the open competitive examination held last July for admission to the Indian Medical Service no similar examination would be held during the continuance of the war but that such appointments as might be required to meet the absolutely indispensable needs of the service would be made by nomination by the Secretary of State To assist him in making these appointments, which will be limited in number to the needs of the service, Mr Chamberlain has appointed a Selection Committee who will interview such applicants as may appear to be suitable, and make recommendations accordingly Applications for appointment should be addressed to the Secretary of the Military Department, India Office, Whitehall, S W, and should contain concise particulars of the medical degrees and career of the candidates, who must be over 21 and under 32 years of age at the time of application Particulars regarding pay, promotion, and conditions of service can be obtained from the Secretary, Military Department

ARMY MEDICAL SERVICE

Col C E Faunce is retained on the Active List

ROYAL ARMY MEDICAL CORPS

J Baker to be temporary Honorary Major whilst employed at the Crowthorne War Hospital

H P Foulerton to be temporary Honorary Captain whilst employed at the Crowthorne War Hospital

Temp Lieuts to be temporary Captains A G Henderson, W B Walker, F de C Keogh, W Gemmill, T W Melhuish, H. Whitehead, J W McDonald, P Lornie M W Baker, O W Bateman, C S Wynne A. F Laird, W G Silvester, W Bannerman, H P Gibb J R Craig T C Harte, B E Spurgin, W Surling J G. Gray, R H Bremridge, R H Urwick, A E Fiddian, W M Penny, W E. Barker, H R S Walford R J Vernon, A J Beadel J A. Lowry, A Campbell, J C Padwick, A W Senior, W W Stacey L M Smith, G B Buckley P Verdon, P L Moore C C Twort, A G Peter, A W Wilcox, G D E Tullis W Crabtree, J W Tocher, J R Rees, J A. Marsden, W J Edgar, H Hargreaves, A Davidson, H E Dyson, F P Young, E Heaterlow, A L McCreery, H O Gough, J D Cooke, G H Simpson, W B Tannahill E. Pretty, T S Brook, J A Harper, C H Mossop, J N J Hartley, B P Campbell, C G H Campbell, C S Jones, R Sinclair, M W Talbot, R C J Stevens, F W Bartlett, P Davies, C Berry, F H Young, A P Fry, L Parcell, R C Lowe, J A Venning, H Mather, J C Wilson, J C Wadmore G B Salmond, D C Adam, P D Scott, W B Loveless G Ellis, C J Pentland, T J Lloyd, V K. Badler D I Anderson, W T Brown, E R Grieveson, W J Spearing H J Keane, C W J Dunlop, E W Kirk R M Lang, R C Cooke, J W Harvey, R S Harvey F C Drew, D K Parkes, W Craig, J F Adamson, M H Cane, R. Paul C M Roberts, J Bain, H K Kirkland Whittaker, and J G Copeland

Late temp Lieuts R A.M C, to be temporary Captains L M Morton, C A M C, and O G Donovan, C A.M C

To be temporary Captains A K H Pollock, J G Taylor, W G Heasman, late Surgeon Captain, Royal Berks Regiment, S E Denyer, C M G, and M Murphy, late temporary Captain, R A M C

To be temporary Lieutenants G O'Neill Waddington B Cohen, B Knowles, H D Wilson, F A Godson E W Hall, W W D Thomson, F A. Faulkner, A. W G Murray, J J O'Mullane, W M G Guinness, B G H Connolly, C L Warke G Gordon, J Carrick, G A Mavor, R C Rogers, H W Windsor Aubrey, M H Bland W Daunt, D Finlayson C Speers, R A Hosegood, J S Bellas W M Christie, H W Bernard, T M Thomson, T M Guthrie, J A Berlyn, B Muir, J D Gray, F Lillev, J R Sinton, F W Cheese J P Fehily, T McC Sellar, C H Burgess, H L Sinclair, B Baylor, T E Adams, H F Sheldon, T R Robertson, J A McIlroy, H A Grierson A E Hart A Newton Brady, G H Adam, and W E Ord

Temp Major A. W May relinquishes his commission

Temp Capts relinquishing their commissions G E Vilvandré, C L Graham, S Jacob, F W Milne, H Mowat C Weller, T S G Martin C Powell, G Norman A E Cotterill J McManus, S McM McLay, A L McLean, A T Smith, W P H Munden, and T Grimson

Temp Lieuts relinquishing their commissions L M Morton, J B Wilman, F H Lawson T McG Fletcher, S Simons, A L Vaughan D J Guthrie A W S McComiskey, P J Verrall J T Reardon, J Honeyford R T MacLaren, W E Plummer, R Roberts, A. B Pugh J R Elwood, H F Williams, F W Daniels E Sutcliffe J Unsworth, R B Austin, S B Legge, H P Thompson G C McIntyre M E Embree, C L Gass, W W Cruise H A Jones, J G Cunningham, A. W Nixon and A B Tucker

SPECIAL RESERVE OF OFFICERS

Temp Lieut J Eric Cheeseman, from R A M C, to be Captain

TERRITORIAL FORCE

Lieut V T Ellwood to be Captain

JOURNAL OF THE ROYAL ARMY MEDICAL CORPS

The December issue of this journal, which closes Vol XXVII, contains a useful article on the Determination of Sugar in the Blood by Captain Charles G L Wolf and Walter C Ball, Sc D the authors believing that "the accurate determination of the concentration of sugar in the blood would assist in the differential diagnosis of certain conditions brought about by exposure to great mental excitement" Honorary and Temporary Lieutenant-Colonel Sir John Collie writes on the Examination of the Back in Cases of Injuries which appear to be uninteresting to everyone except those who suffer, and who have to pay, they are usually relegated to the care of the junior but "as a matter of fact there is quite a fascinating interest in tracing an inadequately defined pain to its true source, or proving its non existence" Other articles are On Some Cases of Abdominal Injury Treated at the Front, written by Captain E H Udall in conjunction with Captain W C Horton and Observations on the Serum Reactions of 300 Unselected Cases of Enteric[1] from the Eastern Mediterranean with the Oxford Standard Agglutinable Cultures, by Captain Ernest Glynn and Dr E Cronin Lowe

[1] Vide THE LANCET 1916 II 227

VITAL STATISTICS

VITAL STATISTICS OF LONDON DURING NOVEMBER, 1916

IN the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs With regard to the notified cases of infectious diseases it appears that the number of persons reported to be suffering from one or other of the 10 diseases specified in the table was equal to an annual rate of 5 0 per 1000 of the population, estimated at 4,310 000 persons in the middle of the year, in the three preceding months the rates were 4 0, 4·9, and 5 4 per 1000 The lowest rates last month were recorded in Kensington, the City of Westminster, St Marylebone, the City of London, and Hampstead the highest rates were recorded in St Pancras Shoreditch, Bethnal Green, Stepney, Southwark, Deptford, and Greenwich The prevalence of scarlet fever showed a slight decline last month, among the various metropolitan boroughs the greatest proportional prevalence of this disease was recorded in Chelsea Shoreditch Bethnal Green, Stepney, Poplar Battersea, and Wandsworth The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals, which had been 1007 and 1117 at the end of the two preceding months had declined again to 1056 at the end of last month, the weekly admissions averaged 131 against 143 and 150 in the two preceding months Diphtheria was more prevalent than it had been in the preceding month, this disease was proportionately most prevalent in Stoke Newington, Shoreditch Bethnal Green, Stepney Southwark, Deptford, and Greenwich The Metropolitan Asylums Hospitals contained 1543 diphtheria patients at the end of last month against 1235, 1287 and 1479 at the end of the three preceding months the weekly admissions averaged 187 against 135 167, and 209 in the three preceding months The prevalence of enteric fever showed very little variation from that recorded in the previous month, of the 55 cases notified during November 15 belonged to St Pancras, 5 to Stepney, 4 each to Kensington, Hackney, and Shoreditch, and 3 each to Paddington, Islington, and Wandsworth There were 42 enteric fever patients under treatment in the Metropolitan Asylums Hospitals at the end of the month, against 35 and 39 at the end of the two preceding months, the weekly admissions averaged 7 in each of the last three months Erysipelas was proportionally most prevalent in Finsbury, Bethnal Green, Southwark, and Camberwell The 21 cases of puerperal fever notified during the month included 3 in Wandsworth and 2 each in the City of Westminster, Bethnal Green, Stepney, Poplar, Lambeth, and Lewisham The 23 cases of cerebro-spinal meningitis included 4 each in Hackney and Wandsworth 3 in St Pancras and 2 in Lewisham, and the 26 cases of poliomyelitis included 3 each in Southwark, Wandsworth, and Camberwell, and 2 each in Fulham Hackney, Stepney, and Bermondsey

The mortality statistics in the table relate to the deaths of persons actually belonging to the several metropolitan boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided During the five weeks ending Dec 2nd the deaths of 6013 London residents were registered, equal to an annual rate of 14 5 per 1000, the rate in each of the two preceding months having been 12 0 per 1000 The death rates last month ranged from 10 1 in Hampstead, 10 8 in Lewisham 11 8 in Wandsworth, 12 4 in Battersea, and 12 6 in Woolwich to 17·0 in Bethnal Green, 17 4 in Shoreditch, 18 2 in Finsbury, 18 3 in Holborn 18 9 in Southwark, and 19 3 in Bermondsey The 6013 deaths from all causes included 291 which were referred to the principal infectious diseases, of these, 53 resulted from measles, 6 from scarlet fever, 63 from diphtheria, 5 from whooping cough, 8 from enteric fever, and 156 from diarrhœa and enteritis among children under 2 years of age No death from any of these diseases was recorded last month in Chelsea Hampstead, or the City of London, among the other boroughs they caused the lowest death rates in Kensington, the City of Westminster, and Wandsworth and the highest rates in Paddington, Shoreditch, Bethnal Green, Poplar, Southwark, Bermondsey, and Greenwich The 53 fatal cases of measles were 74 fewer than the

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING NOVEMBER, 1916

(*Specially compiled for* THE LANCET)

Cities and Boroughs	Estimated civil population, 1916	Notified Cases of Infectious Disease: Small pox	Scarlet fever	Diphtheria*	Typhus fever	Enteric fever	Other continued fevers	Puerperal fever	Erysipelas	Cerebro-spinal meningitis	Poliomyelitis	Total	Annual rate per 1000 persons living	Deaths from Principal Infectious Diseases: Small pox	Measles	Scarlet fever	Diphtheria*	Whooping cough	Enteric fever	Diarrhœa and enteritis (under 2 years)	Total	Annual rate per 1000 persons living	Deaths from all causes*	Death rate per 1000 living
LONDON	4,310 000	—	709	901	—	55	7	21	218	23	26	2050	5·0	—	53	6	63	5	8	156	291	0·7	6013	14·5
West Districts																								
Paddington	131 397	—	12	22	—	3	—	1	6	—	—	44	3·5	—	—	—	—	—	—	12	12	1·0	193	15·7
Kensington	159 795	—	19	15	—	4	—	—	4	1	—	43	2·9	—	—	—	2	—	—	3	5	0·3	222	14·9
Hammersmith	1 8 559	—	17	30	—	1	—	—	7	—	1	56	4·9	—	—	—	1	—	—	3	4	0·4	161	14·2
Fulham	151 161	—	25	32	—	1	—	1	[illegible]	—	2	75	5·2	—	—	—	5	—	—	6	11	0·8	189	13·0
Chelsea	58 421	—	15	[illegible]	—	—	—	—	2	—	1	22	3·9	—	—	—	—	—	—	—	—	—	86	15·4
City of Westminster	135 10[illegible]	—	17	13	—	1	—	2	4	1	—	3	2·9	—	1	—	2	—	—	1	4	0·3	181	14·0
North Districts																								
St Marylebone	100 560	—	8	14	—	1	—	—	4	—	—	27	2·8	—	—	—	1	—	—	5	6	0·6	145	15·1
Hampstead	81,751	—	11	10	—	—	—	—	4	—	—	25	3·2	—	—	—	—	—	—	—	—	—	79	10·1
St Pancras	2[illegible],322	—	29	53	—	15	—	—	10	3	1	111	5·8	—	2	—	3	—	1	3	9	0·5	295	15·4
Islington	318 9[illegible]2	—	47	61	—	3	—	1	15	1	1	129	4·3	—	1	1	8	1	3	11	25	0·3	451	14·9
Stoke Newington	50 527	—	6	17	—	—	—	—	1	—	—	21	5·0	—	—	—	—	—	—	2	2	0·[illegible]	62	12·8
Hackney	217 853	—	35	39	—	4	1	—	13	4	2	93	4·7	—	1	2	3	—	—	2	8	0·[illegible]	295	14·2
Central Districts																								
Holborn	4[illegible] 0[illegible]	—	[illegible]	10	—	2	—	—	1	—	—	17	4·4	—	—	—	2	—	—	1	3	0·8	71	18·3
Finsbury	7[illegible] 915	—	7	1	—	—	—	—	10	—	1	31	4·6	—	—	—	1	—	—	4	5	0·7	134	18·2
City of London	19 481	—	1	2	—	—	—	—	—	—	—	3	1·6	—	—	—	—	—	—	—	—	—	25	13·4
East Districts																								
Shoreditch	103 [illegible]27	—	3	35	—	4	5	1	5	—	—	73	7·6	—	—	—	—	—	3	14	17	1·7	173	17·4
Bethnal Green	129 277	—	3	37	—	—	—	2	20	—	—	90	7·2	—	—	—	2	—	—	9	15	1·3	196	17·0
Stepney	[illegible],731	—	65	103	—	5	—	2	23	1	2	201	7·4	—	2	1	3	1	—	12	19	0·7	347	13·6
Poplar	1[illegible] 2[illegible]	—	32	27	—	1	—	2	15	1	1	79	4·9	—	5	1	2	1	—	8	17	1·1	233	15·6
South																								
Bermondsey	17[illegible] 24	—	2[illegible]	5[illegible]	—	—	—	—	11	1	3	100	6·8	—	7	—	3	1	—	7	18	1·0	325	13·9
Lambeth	1 7 1[illegible]	—	[illegible]	25	—	1	—	—	8	—	2	55	4·[illegible]	—	7	—	4	—	—	4	15	1·3	217	13·3
Battersea	[illegible]	—	[illegible]	[illegible]	—	1	—	2	12	1	1	9[illegible]	3·6	—	2	—	6	—	—	15	23	0·3	460	15·9
Wandsworth	3[illegible]	—	68	4[illegible]	—	2	—	—	8	1	1	6[illegible]	[illegible]	—	3	—	—	—	1	4	8	0·[illegible]	183	13·4
[illegible]	[illegible]	—	45	31	—	3	1	3	1	4	3	13[illegible]	[illegible]	—	—	—	4	1	—	5	10	0·3	[illegible]	11·[illegible]
Greenwich	11 [illegible]	—	[illegible]	21	—	—	—	1	21	1	3	1[illegible]3	[illegible]	—	[illegible]	1	3	—	—	12	2[illegible]	0·8	311	12·7
Lewisham	[illegible]	—	[illegible]	[illegible]	—	—	—	—	7	—	—	6	6·[illegible]	—	1	—	3	—	—	3	7	0·7	150	13·2
Woolwich	1[illegible]	—	[illegible]	[illegible]	—	1	—	2	[illegible]	2	1	7[illegible]	[illegible]	—	5	—	2	—	—	—	11	1·2	132	13·3
[illegible]	—	—	—	—	—	—	—	1	[illegible]	—	—	5[illegible]	3·[illegible]	—	3	—	1	—	—	3	10	0·6	173	16·8
[illegible]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	0·6	156	17·0

[illegible] in each group

corrected average number in the corresponding period of the five preceding years, this disease was proportionally most fatal last month in Bethnal Green, Poplar, Southwark, Bermondsey, and Greenwich The 6 deaths from scarlet fever were only one fifth of the corrected average number, and included 2 in Hackney and 1 each in Islington, Stepney, Poplar, and Camberwell The 63 fatal cases of diphtheria were 10 fewer than the corrected average number, the greatest proportional mortality from this disease occurred in Fulham, Holborn, Bermondsey, and Deptford The 5 deaths from whooping-cough were 42 below the average, and belonged respectively to Islington, Stepney, Poplar, Southwark, and Wandsworth The 8 fatal cases of enteric fever showed a decline of 4 from the corrected average, and included 3 each in Islington and Shoreditch, and 1 each in St Pancras and Battersea The 156 deaths from diarrhœa and enteritis among children under 2 years of age were 31 below the average, the greatest proportional mortality from this cause was recorded in Paddington, St Marylebone, Finsbury, Shoreditch, Bethnal Green, Poplar, and Lambeth In conclusion it may be stated that the aggregate mortality in London last month from these principal infectious diseases was 39·0 per cent below the average

Correspondence.

"Audi alteram partem."

OBSERVATIONS ON THE ANTISEPTIC TREATMENT OF WOUNDS

To the Editor of THE LANCET

SIR,—In your issue of Dec 23rd the use of a camphor carbolic mixture as a disinfectant of projectile wounds is advocated by Mr I Feldman and Captain A. J Walton in their communication on "Observations on the Antiseptic Treatment of Wounds," and at first sight, to judge by their results, they appear to have established their case As I have recently completed a paper dealing with the principles of treatment of wound infections, which I hope will be published shortly, I do not wish to occupy your space at length, but confine myself to a few comments

In November, 1914, I went out to France with Colonel H M W Gray and commenced work on war surgery there with him, and it is interesting to record that camphor-carbolic was the first antiseptic which we employed in wound treatment I feel sure that I am not misrepresenting the views then held by Colonel Gray when I say that he started work in France with a bias in favour of camphor-carbolic, anticipating great things, as he had previously obtained excellent results from it in civil practice On his recommendation I adopted it, and we both used it extensively at first Not being impressed with the results, I tried several variations and changes—equal parts of camphor carbolic and tinct iodi, pure carbolic acid equal parts of carbolic acid and tinct iodi, pure tinct iodi, liquor iodi fort —and in a comparatively short time Colonel Gray and I both came to the conclusion that it was a matter of indifference what antiseptic one employed in the wound, so far as the control of infection was concerned—nay more, that the use of antiseptics did not appreciably affect the course or duration of the infection I am still of this opinion, in spite of various new antiseptics recommended and tried, and I have long since abandoned their use in wound treatment as a means of controlling infection

Efficient and adequate *mechanical* drainage is I believe the one and only secret of success in dealing with infection, and for nearly two years I have held the view that once proper drainage is established it is a matter of indifference whether one employs antiseptics or concentrated saline solutions So far as I have been able to determine by careful observation, the use of either does not appreciably affect the course of infection, and their values are certainly so subsidiary as to be negligible With good mechanical drainage they are unnecessary, without it they are useless

Certain passages in Mr Feldman and Captain Walton's paper appear to me to support this view, and I believe they indicate the factor to which their improved results are due —

"As is the case when using any other application it is primarily essential to provide adequate drainage" "When the treatment is commenced some days or weeks after the infliction of the wound, it is again necessary to open up all sinuses and pockets so that the fluid may reach all the septic areas, and, if necessary, tubes should be inserted so that free drainage is established" " and we have frequently noticed that, if there is a pocket of pus undrained into which the antiseptic does not enter, the surface will not dry Such a condition is an indication for further drainage" "It will be noticed that several of our cases continued to have a large amount of discharge until more free drainage was provided, after which it rapidly ceased"

The authors here clearly recognise that without adequate drainage camphor carbolic is worthless

In their "control cases" a death rate of 10 per cent and an amputation rate of 20 per cent are inexplicable to me, except on the supposition that drainage was most inadequate, no matter what local therapies were employed Presumably these were their earlier cases, and doubtless their methods of drainage, like those of others have improved with increased experience —I am, Sir, yours faithfully,

WILLIAM PEARSON F R C S Irel.,
Chichester Dec 24th 1916 Major R A M C (Temp)

MOBILISATION OF THE MEDICAL PROFESSION

To the Editor of THE LANCET

SIR,—I do not propose to argue with either of your correspondents on this subject in your last issue neither have I the intention of leading any "crusade" No doubt the number of medical practitioners required by the Government for war purposes must be obtained, and the only question at issue is, how is this to be done? The needs of the Government may be met in two ways either by special legislation putting obligations on medical practitioners not shared by the rest of the community or by general enactments binding on all British subjects That is what our profession has to consider, and if your correspondents think there is nothing derogatory to the "honour and dignity" of the profession in the compulsory "deportation" of civilian doctors from their homes and practices—not to attend to soldiers but to take charge of other practices—when it would be illegal to enforce such "deportation" in the case of other British subjects, I do not agree with them It seems to me that "the honour and dignity of the profession" is very much implicated in upholding our rights, not only as medical practitioners, but as British subjects We are as desirous to win the war as any class of the community, but we may fairly claim to be subject only to those laws that are binding on the rest of the nation and I regret exceedingly that they consider it dishonourable to "protest strongly" against our profession being put outside the protection of the law relating to all other British subjects

I am Sir yours faithfully,

Hackney road, N E Dec. 23rd 1916 MAJOR GREENWOOD

Obituary.

THOMAS BARR M D, C M GLASG F F P S GLASG,
SURGEON GLASGOW HOSPITAL FOR DISEASES OF EAR, NOSE, AND THROAT
LECTURER ON AURAL SURGERY UNIVERSITY OF GLASGOW

OF the numerous friends of Dr Thomas Barr of Glasgow, only a limited number were aware that he had been lying seriously ill at his residence during the past few weeks

Thomas Barr was born at Elderslie Renfrewshire, in 1846 and graduated as a Bachelor of Medicine and Master of Surgery, with highest honours at Glasgow University in 1868 receiving in 1870 the M D degree During the years 1865–67 he had the good fortune to study under Lister at a time when that great master was initiating the principles of antiseptic surgery and on many occasions he was heard to say how mentally invigorated he had been by watching the evolution of Lister's laborious efforts

After having been engaged in general practice for a period of nine years, Barr turned his attention to otology and studied under such distinguished exponents of the art as Professors Politzer, Gruber Schrötter, and Urbantschitsch in Vienna He was duly appointed dispensary surgeon for diseases of the ear in the Glasgow Western Infirmary a position which he held for 38 years During this

long period he conducted with great regularity and success the classes on otology for the University students In 1879 he was appointed lecturer on aural surgery in Anderson's College Medical School, a position he held for 16 years when he was appointed lecturer on diseases of the ear in the University of Glasgow In addition he held the post of honorary aurist to the Glasgow Sick Children's Hospital from 1879 (the date of the opening of this institution) until 1914, a period of 35 years In 1884 he was appointed aural surgeon to the Glasgow Ear Hospital, now the Glasgow Hospital for Diseases of the Ear, Nose and Throat a post which he resigned only a short time ago In 1895 the University of Glasgow instituted a lectureship on diseases of the ear, to which he was at once appointed and where he conducted large and successful classes For a period, therefore, of nearly 40 years Barr regularly taught otology keeping himself abreast of all the modern improvements and discoveries in this rapidly advancing branch of the healing art His reputation as an aurist is evidenced from the fact that he acted as President of the Otological Section of the British Medical Association at its meeting in Glasgow in 1888 as President of the Otological Society of the United Kingdom during the years 1903–1905 as President of the Glasgow Pathological and Clinical Society in 1899–1901, and as President of the Scottish Otological and Laryngological Society at its meeting in Glasgow in 1911. He was one of the Vice Presidents of the Otological Section of the International Medical Congress held in London in 1913 His most important literary work was his well known "Manual of Diseases of the Ear for the Use of Students and Practitioners" the first edition being published in 1884 and the fourth in 1909 In the preparation of the last edition he was ably assisted by his only son Dr J Stoddart Barr, whose painful and prolonged illness was a great blow to the devoted father Seldom, indeed, has it been given to father and son to have more cordial, sympathetic, and intimate interests in life

Possessed of a peculiarly lovable temperament," writes one of his personal friends "Barr gathered around himself many friends, to whom he was an inspiration and a true helper in times of doubt and difficulty His hearty hand shake his genial laugh and his never failing urbanity will long be remembered and cherished by those who had the privilege of his intimate friendship. Those who had the good fortune to know him this way will never forget his sunny disposition and his boyish enthusiasm, not only in things otological but in everything pertaining to the advancement of the profession to which he was so devotedly attached Possessing as he did a kindly and domesticated nature he was happy in his home and in his family circle and there sought and found rest after his daily labours By his death the profession have lost a large-hearted, generous and wholly lovable colleague

---

THE LATE MR. JOHN EWENS—Mr J Ewens L.R.C.P Lond L.R.C.S Edin L.S.A., consulting surgeon to the Royal Hospital for Sick Children and Women Bristol, died at his residence at Clifton, on Dec 14th aged 85 years The deceased received his medical education at St George's Hospital after qualifying he practised for a few years at Milton Abbas Dorset where he was on the honorary staff of the local cottage hospital He then went to Bristol where he was elected on the honorary surgical staff of the Children's Hospital He practised for many years in Bristol and Clifton but had retired for some time from active work Mr Ewens was held in high esteem and by his death an old and much respected member of the medical profession has been removed from Bristol

WE regret to announce the death, in his eightieth year of Dr James Little Regius Professor of Physic in the University of Dublin and a past President of the Royal College of Physicians of Ireland

---

LONDON SCHOOL OF TROPICAL MEDICINE—The following candidates passed the examination of this school at the termination of the fifty second session (October December 1916 —R D Saltnis W S Sharpe (Lieutenant Colonel I.A.M.C.) L D Parsons (Ceylon Medical Service) G H Dart Fred Barrett and H J Kanavale (Ceylon Medical Service)

The War.

THE CASUALTY LIST

THE following names of medical officers appear among the casualties announced since our last issue —

Died of Wounds

Capt C K McKerrow, R.A.M.C was educated at Charterhouse and at Cambridge, and qualified in 1908 After holding appointments at St George's Hospital, London, and at the Women's Hospital, Vienna, he practised at Ayr, in Scotland, and joined the R.A.M.C soon after the outbreak of war He was promoted Captain in June of this year

Lieut E Howe, R.A.M.C, graduated at Manchester University in 1909 He held an appointment at the Manchester Royal Infirmary, and afterwards was in practice at Hazel Grove, Stockport He joined the R.A.M.C in October last

Wounded

Capt D V M Adams, R.A.M.C, attached Gloucester Regiment

Capt W D Reid, R.A.M.C attached Manchester Regiment

Capt G M Geddie, R.A.M.C, attached Gloucester Regiment

DEATHS AMONG THE SONS OF MEDICAL MEN

The following sons of medical men must be added to our lists of those who have fallen during the war —

Lieut A H Cheetham Duke of Wellington's Regiment, younger son of Dr W H Cheetham of Guiseley, Yorkshire county medical officer of the North Riding

Second Lieut R B W Vinter, M.C, Worcestershire Regiment, elder son of Capt S G Vinter, R.A.M.C, of Torpoint, Cornwall

Lieut R Underhill, Middlesex Regiment, eldest son of Dr F T Underhill medical officer of health, Vancouver, British Columbia

Capt C K McKerrow, R.A.M.C, eldest son of the late Dr G McKerrow of Ayr, Scotland

Lieut J M T Stock, East Lancashire Regiment younger son of the late Lieut Col J N Stock, R.A.M.C, formerly of Cheltenham

---

THE HONOURS LIST

THE following awards to medical officers are announced —

Military Cross

Temp Capt Walter Eustace Adam, R.A.M.C

For conspicuous gallantry and devotion to duty He displayed great courage and determination in dressing and evacuating wounded under heavy fire.

Temp Capt Henry St Arnaud Agate R.A.M.C

For conspicuous gallantry and devotion to duty He attended to men who had been buried under intense fire On another occasion he dressed the wounded of two battalions working continuously for 17 hours under fire

Capt Robert Burgess, R.A.M.C

For conspicuous gallantry and devotion to duty He worked at the advanced dressing station continuously for 72 hours exposing himself fearlessly and although wounded refused to be relieved and remained at duty

Capt William Hunt, R.A.M.C

For conspicuous gallantry and devotion to duty He extinguished a fire in a bomb store at great personal risk removing two boxes of burning bombs and undoubtedly saving many lives

Temp Lieut John Woollaston Warte R.A.M.C

For conspicuous gallantry and devotion to duty He organised and led stretcher parties under intense fire On several occasions he rescued wounded men in the open by carrying them on his back. He has previously done fine work.

Capt George Garret Greer, Canadian A.M.C

For conspicuous gallantry and devotion to duty He tended and dressed the wounded for two hours in the open under intense fire Later he worked continuously for 48 hours and by his courage and devotion to duty was a splendid example to his men.

Bar to Military Cross

Temp Capt David Duncan Craig M.C R.A.M.C

For conspicuous gallantry and devotion to duty He tended the wounded throughout the operation with great courage and skill frequently passing through enemy barrages and going into the open He was a splendid example (The award of the Military Cross was recorded in THE LANCET of March 1915)

Temp Capt Ivan Clarkson Maclean M.C R.A.M.C

For conspicuous gallantry and devotion to duty He tended and dressed the wounded continuously throughout the engagement under very heavy fire displaying great courage and determination (The award of the Military Cross was recorded in THE LANCET of June 5th 1915)

corrected average number in the corresponding period of the five preceding years, this disease was proportionally most fatal last month in Bethnal Green, Poplar, Southwark, Bermondsey, and Greenwich The 6 deaths from scarlet fever were only one fifth of the corrected average number, and included 2 in Hackney and 1 each in Islington Stepney, Poplar, and Camberwell The 63 fatal cases of diphtheria were 10 fewer than the corrected average number, the greatest proportional mortality from this disease occurred in Fulham, Holborn, Bermondsey, and Deptford The 5 deaths from whooping cough were 42 below the average, and belonged respectively to Islington, Stepney, Poplar, Southwark, and Wandsworth The 8 fatal cases of enteric fever showed a decline of 4 from the corrected average, and included 3 each in Islington and Shoreditch, and 1 each in St Pancras and Battersea The 156 deaths from diarrhœa and enteritis among children under 2 years of age were 31 below the average, the greatest proportional mortality from this cause was recorded in Paddington, St Marylebone, Finsbury, Shoreditch, Bethnal Green, Poplar, and Lambeth In conclusion it may be stated that the aggregate mortality in London last month from these principal infectious diseases was 39 0 per cent below the average

Correspondence.

"Audi alteram partem

OBSERVATIONS ON THE ANTISEPTIC TREATMENT OF WOUNDS

To the Editor of THE LANCET

SIR,—In your issue of Dec 23rd the use of a camphor-carbolic mixture as a disinfectant of projectile wounds is advocated by Mr I Feldman and Captain A J Walton in their communication on "Observations on the Antiseptic Treatment of Wounds," and at first sight, to judge by their results, they appear to have established their case As I have recently completed a paper dealing with the principles of treatment of wound infections, which I hope will be published shortly, I do not wish to occupy your space at length, but confine myself to a few comments

In November, 1914, I went out to France with Colonel H M W Gray and commenced work on war surgery there with him, and it is interesting to record that camphor-carbolic was the first antiseptic which we employed in wound treatment I feel sure that I am not misrepresenting the views then held by Colonel Gray when I say that he started work in France with a bias in favour of camphor-carbolic, anticipating great things, as he had previously obtained excellent results from it in civil practice On his recommendation I adopted it, and we both used it extensively at first Not being impressed with the results, I tried several variations and changes—equal parts of camphor carbolic and tinct iodi, pure carbolic acid, equal parts of carbolic acid and tinct iodi, pure tinct iodi, liquor iodi fort —and in a comparatively short time Colonel Gray and I both came to the conclusion that it was a matter of indifference what antiseptic one employed in the wound, so far as the control of infection was concerned—nay more, that the use of antiseptics did not appreciably affect the course or duration of the infection I am still of this opinion, in spite of various new antiseptics recommended and tried, and I have long since abandoned their use in wound treatment as a means of controlling infection

Efficient and adequate *mechanical* drainage is I believe, the one and only secret of success in dealing with infection, and for nearly two years I have held the view that once proper drainage is established it is a matter of indifference whether one employs antiseptics or concentrated saline solutions So far as I have been able to determine by careful observation, the use of either does not appreciably affect the course of infection and their values are certainly so subsidiary as to be negligible With good mechanical drainage they are unnecessary, without it they are useless

Certain passages in Mr Feldman and Captain Walton's paper appear to me to support this view, and I believe they indicate the factor to which their improved results are due —

"As is the case when using any other application, it is primarily essential to provide adequate drainage" "When the treatment is commenced some days or weeks after the infliction of the wound, it is again necessary to open up all sinuses and pockets so that the fluid may reach all the septic areas, and, if necessary, tubes should be inserted so that free drainage is established" " and we have frequently noticed that, if there is a pocket of pus undrained into which the antiseptic does not enter, the surface will not dry Such a condition is an indication for further drainage" "It will be noticed that several of our cases continued to have a large amount of discharge until more free drainage was provided, after which it rapidly ceased"

The authors here clearly recognise that without adequate drainage camphor carbolic is worthless

In their "control cases" a death rate of 10 per cent and an amputation rate of 20 per cent are inexplicable to me, except on the supposition that drainage was most inadequate, no matter what local therapies were employed Presumably these were their earlier cases, and doubtless their methods of drainage, like those of others have improved with increased experience —I am, Sir, yours faithfully,

WILLIAM PEARSON F R C S Irel,
Chichester, Dec 24th 1916 Major R A M C (Temp)

MOBILISATION OF THE MEDICAL PROFESSION.

To the Editor of THE LANCET

SIR,—I do not propose to argue with either of your correspondents on this subject in your last issue neither have I the intention of leading any "crusade" No doubt the number of medical practitioners required by the Government for war purposes must be obtained, and the only question at issue is, how is this to be done? The needs of the Government may be met in two ways either by special legislation putting obligations on medical practitioners not shared by the rest of the community, or by general enactments binding on all British subjects That is what our profession has to consider, and if your correspondents think there is nothing derogatory to the "honour and dignity" of the profession in the compulsory "deportation" of civilian doctors from their homes and practices—not to attend to soldiers but to take charge of other practices—when it would be illegal to enforce such "deportation" in the case of other British subjects, I do not agree with them It seems to me that "the honour and dignity of the profession" is very much implicated in upholding our rights, not only as medical practitioners, but as British subjects We are as desirous to win the war as any class of the community, but we may fairly claim to be subject only to those laws that are binding on the rest of the nation and I regret exceedingly that they consider it dishonourable to "protest strongly" against our profession being put outside the protection of the law relating to all other British subjects

I am Sir, yours faithfully,

Hackney road N E Dec 23rd 1916 MAJOR GREENWOOD

Obituary.

THOMAS BARR, M D, C M GLASG F F P S GLASG,
SURGEON GLASGOW HOSPITAL FOR DISEASES OF EAR, NOSE, AND THROAT
LECTURER ON AURAL SURGERY UNIVERSITY OF GLASGOW

OF the numerous friends of Dr Thomas Barr of Glasgow, only a limited number were aware that he had been lying seriously ill at his residence during the past few weeks

Thomas Barr was born at Elderslie Renfrewshire in 1846 and graduated as a Bachelor of Medicine and Master of Surgery with highest honours at Glasgow University in 1868 receiving in 1870 the M D degree During the years 1865-67 he had the good fortune to study under Lister at a time when that great master was initiating the principles of antiseptic surgery, and on many occasions he was heard to say how mentally invigorated he had been by watching the evolution of Lister's laborious efforts

After having been engaged in general practice for a period of nine years, Barr turned his attention to otology and studied under such distinguished exponents of the art as Professors Politzer, Gruber Schrötter and Urbantschitsch in Vienna. He was duly appointed dispensary surgeon for diseases of the ear in the Glasgow Western Infirmary, a position which he held for 38 years During this

long period he conducted with great regularity and success the classes on otology for the University students In 1879 he was appointed lecturer on aural surgery in Anderson's College Medical School a position he held for 16 years, when he was appointed lecturer on diseases of the ear in the University of Glasgow In addition he held the post of honorary aurist to the Glasgow Sick Children's Hospital from 1879 (the date of the opening of this institution) until 1914, a period of 35 years In 1884 he was appointed aural surgeon to the Glasgow Ear Hospital, now the Glasgow Hospital for Diseases of the Ear, Nose and Throat a post which he resigned only a short time ago In 1895 the University of Glasgow instituted a lectureship on diseases of the ear to which he was at once appointed and where he conducted large and successful classes For a period, therefore, of nearly 40 years Barr regularly taught otology, keeping himself abreast of all the modern improvements and discoveries in this rapidly advancing branch of the healing art His reputation as an aurist is evidenced from the fact that he acted as President of the Otological Section of the British Medical Association at its meeting in Glasgow in 1888 as President of the Otological Society of the United Kingdom during the years 1903–1905 as President of the Glasgow Pathological and Clinical Society in 1899–1901, and as President of the Scottish Otological and Laryngological Society at its meeting in Glasgow in 1911. He was one of the Vice Presidents of the Otological Section of the International Medical Congress held in London in 1913 His most important literary work was his well known "Manual of Diseases of the Ear for the Use of Students and Practitioners" the first edition being published in 1884 and the fourth in 1909 In the preparation of the last edition he was ably assisted by his only son Dr J Stoddart Barr, whose painful and prolonged illness was a great blow to the devoted father Seldom, indeed, has it been given to father and son to have more cordial, sympathetic, and intimate interests in life

"Possessed of a peculiarly lovable temperament," writes one of his personal friends "Barr gathered around himself many friends, to whom he was an inspiration and a true helper in times of doubt and difficulty His hearty handshake, his genial laugh and his never failing urbanity will long be remembered and cherished by those who had the privilege of his intimate friendship Those who had the good fortune to know him this way will never forget his sunny disposition and his boyish enthusiasm, not only in things otological but in everything pertaining to the advancement of the profession to which he was so devotedly attached Possessing as he did a kindly and domesticated nature he was happy in his home and in his family circle, and there sought and found rest after his daily labours By his death the profession have lost a large-hearted, generous and wholly lovable colleague"

THE LATE MR JOHN EWENS—Mr J Ewens L R C P Lond, L R C S Edin, L S A., consulting surgeon to the Royal Hospital for Sick Children and Women, Bristol, died at his residence at Clifton, on Dec 14th aged 86 years The deceased received his medical education at St George's Hospital, after qualifying he practised for a few years at Milton Abbas Dorset where he was on the honorary staff of the local cottage hospital He then went to Bristol where he was elected on the honorary surgical staff of the Children's Hospital He practised for many years in Bristol and Clifton but had retired for some time from active work. Mr Ewens was held in high esteem and by his death an old and much respected member of the medical profession has been removed from Bristol

WE regret to announce the death, in his eightieth year of Dr James Little Regius Professor of Physic in the University of Dublin and a past President of the Royal College of Physicians of Ireland

---

LONDON SCHOOL OF TROPICAL MEDICINE—The following candidates passed the examination of this school at the termination of the fifty second session (October December 1916 —R D Gabnis W S Sharpe (Lieutenant Colonel R A M C) L D Parsons (Ceylon Medical Service) G H Dart Fred Barre to and H I Ekanayake (Ceylon Medical Service)

The War.

THE CASUALTY LIST

THE following names of medical officers appear among the casualties announced since our last issue —

Died of Wounds

Capt C K McKerrow, R.A.M C, was educated at Charterhouse and at Cambridge and qualified in 1908 After holding appointments at St George's Hospital, London, and at the Women's Hospital, Vienna, he practised at Ayr, in Scotland, and joined the R A M C soon after the outbreak of war He was promoted Captain in June of this year

Lieut E Howe, R A M C, graduated at Manchester University in 1909 He held an appointment at the Manchester Royal Infirmary, and afterwards was in practice at Hazel Grove, Stockport He joined the R A M C in October last

Wounded

Capt D V M Adams, R.A.M C, attached Gloucester Regiment

Capt W D Reid, R A M C, attached Manchester Regiment

Capt C M Geddie, R A M C, attached Gloucester Regiment

DEATHS AMONG THE SONS OF MEDICAL MEN

The following sons of medical men must be added to our lists of those who have fallen during the war —

Lieut A H Cheetham Duke of Wellington's Regiment younger son of Dr W H. Cheetham, of Guiseley, Yorkshire county medical officer of the North Riding

Second Lieut R B W Vinter, M.C, Worcestershire Regiment, elder son of Capt S G Vinter, R A.M C, of Torpoint, Cornwall

Lieut R Underhill, Middlesex Regiment, eldest son of Dr F T Underhill medical officer of health, Vancouver, British Columbia

Capt C K McKerrow, R A.M C, eldest son of the late Dr G McKerrow, of Ayr, Scotland

Lieut J M T Stock, East Lancashire Regiment younger son of the late Lieut-Col J N Stock, R A.M C, formerly of Cheltenham

---

THE HONOURS LIST

THE following awards to medical officers are announced —

Military Cross

Temp Capt Walter Eustace Adam, R A.M C

For conspicuous gallantry and devotion to duty He displayed great courage and determination in dressing and evacuating wounded under heavy fire.

Temp Capt Henry St Arnaud Agate, R A M.C

For conspicuous gallantry and devotion to duty He attended to men who had been buried under intense fire On another occasion he dressed the wounded of two battalions working continuously for 17 hours under fire

Capt Robert Burgess, R A M C

For conspicuous gallantry and devotion to duty He worked at the advanced dressing station continuously for 72 hours exposing himself fearlessly and although wounded refused to be relieved and remained at duty

Capt William Hunt, R A M C

For conspicuous gallantry and devotion to duty He extinguished a fire in a bomb store at great personal risk removing two boxes of burning bombs and undoubtedly saving many lives

Temp Lieut John Woollaston Warte R A M C

For conspicuous gallantry and devotion to duty He organised and led stretcher parties under intense fire On several occasions he rescued wounded men in the open by carrying them on his back. He has previously done fine work.

Capt George Garret Greer, Canadian A M C

For conspicuous gallantry and devotion to duty He tended and dressed the wounded for two hours in the open under intense fire Later he worked continuously for 48 hours and by his courage and devotion to duty was a splendid example to his men.

Bar to Military Cross

Temp Capt David Duncan Craig M C R A.M C

For conspicuous gallantry and devotion to duty He tended the wounded throughout the operations with great courage and skill frequently passing through enemy barrages and going into the open He set a splendid example (The award of the Military Cross was recorded in THE LANCET of June 24th, 1916.)

Temp Capt Ivan Clarkson Maclean M C, R.A M C

For conspicuous gallantry and devotion to duty He tended and dressed the wounded continuously throughout the operations under very heavy fire displaying great courage and determination (The award of the Military Cross was recorded in THE LANCET of June 24th, 1916.)

corrected average number in the corresponding period of the five preceding years, this disease was proportionally most fatal last month in Bethnal Green, Poplar, Southwark, Bermondsey, and Greenwich The 6 deaths from scarlet fever were only one fifth of the corrected average number, and included 2 in Hackney and 1 each in Islington, Stepney, Poplar, and Camberwell The 63 fatal cases of diphtheria were 10 fewer than the corrected average number, the greatest proportional mortality from this disease occurred in Fulham, Holborn, Bermondsey, and Deptford The 5 deaths from whooping-cough were 42 below the average, and belonged respectively to Islington, Stepney, Poplar, Southwark, and Wandsworth The 8 fatal cases of enteric fever showed a decline of 4 from the corrected average, and included 3 each in Islington and Shoreditch, and 1 each in St Pancras and Battersea The 156 deaths from diarrhœa and enteritis among children under 2 years of age were 31 below the average, the greatest proportional mortality from this cause was recorded in Paddington, St Marylebone, Finsbury, Shoreditch, Bethnal Green, Poplar, and Lambeth In conclusion it may be stated that the aggregate mortality in London last month from these principal infectious diseases was 39 0 per cent below the average

Correspondence.

"Audi alteram partem"

OBSERVATIONS ON THE ANTISEPTIC TREATMENT OF WOUNDS

To the Editor of THE LANCET

SIR,—In your issue of Dec 23rd the use of a camphor carbolic mixture as a disinfectant of projectile wounds is advocated by Mr I Feldman and Captain A J Walton in their communication on "Observations on the Antiseptic Treatment of Wounds," and at first sight, to judge by their results, they appear to have established their case As I have recently completed a paper dealing with the principles of treatment of wound infections, which I hope will be published shortly, I do not wish to occupy your space at length, but confine myself to a few comments

In November, 1914, I went out to France with Colonel H M W Gray and commenced work on war surgery there with him, and it is interesting to record that camphor carbolic was the first antiseptic which we employed in wound treatment. I feel sure that I am not misrepresenting the views then held by Colonel Gray when I say that he started work in France with a bias in favour of camphor carbolic, anticipating great things, as he had previously obtained excellent results from it in civil practice On his recommendation I adopted it, and we both used it extensively at first Not being impressed with the results, I tried several variations and changes—equal parts of camphor carbolic and tinct iodi, pure carbolic acid, equal parts of carbolic acid and tinct iodi, pure tinct iodi, liquor iodi fort—and in a comparatively short time Colonel Gray and I both came to the conclusion that it was a matter of indifference what antiseptic one employed in the wound so far as the control of infection was concerned—nay more, that the use of antiseptics did not appreciably affect the course or duration of the infection I am still of this opinion, in spite of various new antiseptics recommended and tried, and I have long since abandoned their use in wound treatment as a means of controlling infection

Efficient and adequate *mechanical* drainage is I believe the one and only secret of success in dealing with infection, and for nearly two years I have held the view that once proper drainage is established it is a matter of indifference whether one employs antiseptics or concentrated saline solutions So far as I have been able to determine by careful observation, the use of either does not appreciably affect the course of infection, and their values are certainly so subsidiary as to be negligible With good mechanical drainage they are unnecessary, without it they are useless

Certain passages in Mr Feldman and Captain Walton's paper appear to me to support this view, and I believe they indicate the factor to which their improved results are due —

"As is the case when using any other application it is primarily essential to provide adequate drainage" "When the treatment is commenced some days or weeks after the infliction of the wound, it is again necessary to open up all sinuses and pockets so that the fluid may reach all the septic areas, and, if necessary, tubes should be inserted so that free drainage is established" " and we have frequently noticed that, if there is a pocket of pus undrained into which the antiseptic does not enter, the surface will not dry Such a condition is an indication for further drainage" "It will be noticed that several of our cases continued to have a large amount of discharge until more free drainage was provided, after which it rapidly ceased"

The authors here clearly recognise that without adequate drainage camphor carbolic is worthless

In their "control cases" a death rate of 10 per cent and an amputation rate of 20 per cent are inexplicable to me, except on the supposition that drainage was most inadequate, no matter what local therapies were employed Presumably these were their earlier cases, and doubtless their methods of drainage, like those of others have improved with increased experience —I am, Sir, yours faithfully,

WILLIAM PEARSON F R C S Irel,
Chichester Dec. 24th 1916 Major R A M C (Temp)

MOBILISATION OF THE MEDICAL PROFESSION.

To the Editor of THE LANCET

SIR,—I do not propose to argue with either of your correspondents on this subject in your last issue neither have I the intention of leading any "crusade" No doubt the number of medical practitioners required by the Government for war purposes must be obtained and the only question at issue is, how is this to be done? The needs of the Government may be met in two ways either by special legislation putting obligations on medical practitioners not shared by the rest of the community or by general enactments binding on all British subjects. That is what our profession has to consider, and if your correspondents think there is nothing derogatory to the "honour and dignity" of the profession in the compulsory "deportation" of civilian doctors from their homes and practices—not to attend to soldiers but to take charge of other practices—when it would be illegal to enforce such "deportation" in the case of other British subjects, I do not agree with them It seems to me that "the honour and dignity of the profession" is very much implicated in upholding our rights, not only as medical practitioners, but as British subjects We are as desirous to win the war as any class of the community, but we may fairly claim to be subject only to those laws that are binding on the rest of the nation and I regret exceedingly that they consider it dishonourable to "protest strongly" against our profession being put outside the protection of the law relating to all other British subjects

I am Sir, yours faithfully,
Hackney road N E Dec. 23rd 1916 MAJOR GREENWOOD

Obituary.

THOMAS BARR M D, C M GLASG F F P S GLASG,
SURGEON GLASGOW HOSPITAL FOR DISEASES OF EAR, NOSE, AND THROAT
LECTURER ON AURAL SURGERY UNIVERSITY OF GLASGOW

OF the numerous friends of Dr Thomas Barr of Glasgow only a limited number were aware that he had been lying seriously ill at his residence during the past few weeks

Thomas Barr was born at Eldersile Renfrewshire in 1846 and graduated as a Bachelor of Medicine and Master of Surgery, with highest honours at Glasgow University in 1868 receiving in 1870 the M D degree During the years 1865–67 he had the good fortune to study under Lister at a time when that great master was initiating the principles of antiseptic surgery, and on many occasions he was heard to say how mentally invigorated he had been by watching the evolution of Lister's laborious efforts

After having been engaged in general practice for a period of nine years, Barr turned his attention to otology and studied under such distinguished exponents of the art as Professors Politzer, Gruber Schrötter, and Urbantschitsch in Vienna. He was duly appointed dispensary surgeon for diseases of the ear in the Glasgow Western Infirmary, a position which he held for 38 years During this

ROYAL COLLEGE OF SURGEONS OF EDINBURGH—At a meeting of the College held on Dec 20th Mr Dolbalapur Sivappa Pattanna having passed the requisite examinations, was admitted a Fellow

THE PROFESSIONAL CLASSES WAR RELIEF FUND—This fund has already dealt with a large number of cases of distress among the women and children of the professional classes who have suffered most from the war The education of children the training for suitable careers of youths and girls and the provision of maternity homes for wives of professional men who are serving their country, are the three chief branches of the work of the Council which administers the fund This Council represents all the great professional bodies and is now appealing for further funds to carry on its work Sir William Dunn the Lord Mayor of London as President of the Council will receive subscriptions at 13 Prince s Gate, London, S W

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS

End of Parliamentary Session

PARLIAMENT was prorogued on Friday, Dec 22nd. The new session will begin on Wednesday, Feb 7th The King s Speech dealt entirely with the war "The vigorous prosecution of the war' it said 'must be our single endeavour until we have vindicated the rights so ruthlessly violated by our enemies and established the security of Europe on a sure foundation"

HOUSE OF COMMONS

THURSDAY, DEC 21ST

Licences for Experiments on Living Animals

Sir G GREENWOOD asked the Home Secretary whether the two alien enemies whose names appeared in the Annual Returns for 1915 as holding licences to perform experiments upon living animals had now been interned and if so at what date and, if no whether they still held such licences —Sir G CAVE said in reply One of the two persons mentioned left the country in April 1915, and his licence was revoked The other, who is of Polish birth, was exempted from internment on the recommendation of the Advisory Committee, and still holds a licence under the Act

Sir G GREENWOOD asked whether the Germans said to have been naturalised in this country whose names appeared in the Annual Returns for 1915 as holding licences to perform experiments upon living animals still held such licences and if so what certificates, if any did they respectively hold —Sir G CAVE answered Two licences are now held by persons of German origin naturalised in this country One of them has an A certificate and the other has two A certificates and an E

Sir G GREENWOOD asked whether the 16 Japanese subjects whose names appeared in the Annual Returns for 1915 as holding licences to perform experiments upon living animals or any of them still held such licences, if so what certificates if any did they respectively hold and whether he would consider the desirability of confining such licences to British citizens —Sir G CAVE replied Of the 16 Japanese subjects mentioned 13 have given up their licences having completed their experiments Of the remaining three one holds no certificates one holds Certificate A only, and the third, a staff surgeon of the Japanese Navy holds two A certificates two B certificates one E and one H I am no aware of any grounds for altering the established practice with regard to the grant of licences to other than British subjects on special conditions I may point out that this matter was considered by the Royal Commission who expressed approval of the arrangements adopted by the Home Office in regard to it.

Surgical Appliances for Wounded Soldiers

Mr H LAW asked the Financial Secretary to the War Office whether he was aware that certain of the surgical appliances issued to wounded soldiers in this country and in Ireland were inferior to those supplied in similar cases by the Governments of the Dominions and whether steps would be taken to level up the quality of such appliances to the Colonial standard —Mr HARTSHORN replied I am not aware that wounded soldiers in this country and Ireland are supplied with surgical appliances inferior to those supplied by the Dominion governments

FRIDAY DEC 22ND

Medical Examinations

Answering Mr Watt Mr Macpherson said As all the Tribunals are now fully supplied with medical units I prefer that it should only occasion to send in individual cases for medical examination

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index)

When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor

ABERGAVENNY MONMOUTH COUNTY ASYLUM—Temporary Assistant Medical Officer Salary £7 7s per week with board &c

BARNET CLARE HALL SANATORIUM FOR PULMONARY TUBERCULOSIS South Mimms near Barnet—Assistant Medical Superintendent

BIRMINGHAM GENERAL DISPENSARY—Resident Medical Officer unmarried Salary £250 per annum with board &c

BOLTON INFIRMARY AND DISPENSARY—Female Second House Surgeon Also Female Third House Surgeon Salaries £200 and £150 per annum respectively with board &c

BOLTON UNION, FISHGOOL INSTITUTION Farnworth near Bolton—Resident Assistant Medical Officer Salary £333 5s per annum, with ration &c.

BOURNEMOUTH ROYAL VICTORIA AND WEST HANTS HOSPITAL.—House Surgeon unmarried for six months. Salary £200 per annum, with board, &c.

BRIDGWATER HOSPITAL.—House Surgeon Salary £120 per annum with board &c

BRISTOL GENERAL HOSPITAL—House Surgeon Salary at rate of £175 per annum with board &c.

BUXTON DERBYSHIRE, DEVONSHIRE HOSPITAL.—Assistant House Physician Salary £100 per annum with board &c.

CARDIFF KING EDWARD VII.s HOSPITAL.—Fourth Year Student Dresser for three months Salary at rate of 52 guineas per annum with board &c

CHELSEA HOSPITAL FOR WOMEN Arthur-street Chelsea, S W—House Surgeon unmarried Salary £80 per annum

ECCLESALL BIERLOW UNION INFIRMARY—Resident Assistant Medical Officer Salary £250 per annum with board &c.

HARROGATE INFIRMARY—Resident House Surgeon

HOSPITAL FOR SICK CHILDREN Great Ormond-street London W C—House Surgeons Assistant Casualty Medical Officer and House Physician unmarried. Salary at rate of £60 per annum each with board, &c

LEDBURY UNION BOSBURY DISTRICT—Medical Officer Salary £75 per annum.

LEEDS CITY HOSPITALS FOR INFECTIOUS DISEASES AND TUBERCULOSIS—Assistant Medical Officer Salary at rate of £250 per annum with board &c

LEICESTER CORPORATION—Female Second Resident Medical Officer for Isolation Hospital and Sanatorium Groby road Salary at rate of £250 per annum with board, &c.

LONDON HOMŒOPATHIC HOSPITAL, Great Ormond-street London W C—Two Resident Medical Officers Salary £80 per annum with board &c.

METROPOLITAN HOSPITAL Kingsland road N E.—Resident Medical Officer Salary at rate of £150 to £200 per annum with board &c.

MIDDLESBROUGH NORTH ORMESBY HOSPITAL.—Assistant House Surgeon. Salary £150 per annum with board &c If a Senior Student salary £100 per annum

NORTHAMPTONSHIRE WAR HOSPITAL.—Resident Medical Officer. Salary £1 per day with board &c

NOTTINGHAM AND MIDLAND EYE INFIRMARY—Female House Surgeon.

QUEEN'S HOSPITAL FOR CHILDREN Hackney road Bethnal Green E—House Physician and House Surgeon for six months Salary £100 per annum with board &c Also Temporary Assistant Physician

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL, 23, Great Portland street W—Resident Surgical Officer

SUNDERLAND COUNTY BOROUGH EDUCATION COMMITTEE.—Temporary Female School Medical Officer Salary £250 per annum

VENTNOR, ISLE OF WIGHT ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST ON THE SEPARATE PRINCIPLE.—Assistant Resident Medical Officer

Births, Marriages, and Deaths.

BIRTHS

BECHER—On May 21st at Thornwood London Ontario, the widow of Major Archibald Becher R.A.M.C Canadian Infantry—a son.

BLACK.—On Dec. 17th at Newton Cottage Alverstoke Hants the wife of Staff Surgeon F G H R Black R.N.—a daughter

HOWELL—On Dec 22nd, at Hayleystree W the wife of C M Hinds Howell M.D F R C P of a son.

MARRIAGES

YOUNGER—ABBY—On Dec [illegible] at St Bartholomew s Church Gravesend [illegible] by the Lord Bishop of Willesden, assisted by the Cuthbert Newsom, L.D C P L and [illegible] (uncle of the bride) George South Devon only surviving child of [illegible] Esq of Bovey Tracey M R C P D I H and Mrs Younger of 2 Mecklenburgh square W C to Lilian Elizabeth second daughter of the Rev H H and Mrs Abby of St Bartholomew s Vicarage W C

DEATHS

BLANDFORD—On Dec. 21st at The Manor Norton, Stockton-on Tees Dr J W Blandford J P [illegible] Colonel [illegible] M.C. aged 63

[illegible]—On Dec 21st at Hill House Jesmond Henry Freer L.R.C.P [illegible] M R C S [illegible] in his [illegible] year

GEN[illegible]—On Dec [illegible] in London [illegible] L.R.C.P L.R.C.S [illegible] of Jewish Hospital [illegible]

LITTLE—On Dec 23rd at his residence 6 St Catherine s Green Dublin James [illegible] M.D Regius Professor of Physic Trinity College Dublin in his 80th year

McKEREW—On Dec 23rd of wounds Charles Kenneth M [illegible] M A M B B C M C S L.R.C.P Captain R A M C

N B—A [illegible] of [illegible] of [illegible] Vacancies of Births [illegible]

Also the following for services in Mesopotamia —

C B—Lieut Col G B Irvine, I M S
C M G—Col A E Tate, A M S
C I E—Major W Gillitt, I M S
Brevet Col—Lieut Col (temp Col) D J Collins, R A M C
Brevet Lieut Col—Major J H Crossley, R A M C, Major J G Footer, R A M C, Major C M Goodbody, D S O, I M S, Major J. H Morton, D S O, I M S
Brevet Major—Capt F T Dowling R A M C, Capt T J Mitchell, R A M C
D S O—Capt W H. Hamilton, I M S Capt R de S B Herrick, I M S, Major R Kelsall, I M S, Temp Capt A N Minns, R A M C, Capt R Sweet, I M S
Military Cross—Temp Capt R M. Allan, R A M C, Capt D V C FitzGerald, I.M.S Capt H L Garson, R A M C. (Spec Res), Capt. A Glen, R A M C (Spec Res), Capt E S Goss, I M S, Capt J H Hislop I M S, Temp Lieut W G MacDonald, R A M C, Capt R F D MacGregor I M S, Capt W H O'Riordan, R A M C, Capt. D H Rai, I.M S, Capt H K Rowntree, I M S, Capt Jyoti Lal Sen, I M S, Temp Lieut. Sundar Das Sondhi, I M S, Temp Lieut J B Thackeray, R A M C

NEW MILITARY ORTHOPÆDIC CENTRE

A movement is on foot to establish in Ireland another auxiliary hospital for the treatment of sailors and soldiers who have lost limbs A committee for the purpose has been formed with the coöperation of Surgeon General Ford, D D M S Irish Command, and H R H. the Duke of Connaught has consented to be patron A suitable building has already been secured and submitted to structural alterations, and an appeal has been issued for funds.

THE COMMITTEE ON WAR DAMAGE

On two occasions Mr Asquith declined to receive deputations, the object of which would have been to obtain compensation out of national funds for damage inflicted in the United Kingdom by hostile aircraft or bombardment The policy of the late Government was to encourage insurance, which the State undertook to conduct This, however, was only designed to compensate for damage done to property and left uncovered the risk of personal injury or loss of life, a risk affecting many who would be unlikely, or unable, to protect themselves by the payment of premiums

An appeal for sympathetic treatment in this direction has now been raised by those who are interesting themselves in the effort to secure State compensation for all affected, whether in person or property The Lord Mayor of York at a meeting at which the late Prime Minister's refusal to reopen the question was discussed, stated that the bodies asking for State compensation—the Committee on War Damage, combined with the Association of Municipal Corporations—after allowance for overlapping, represent 718 municipalities with a population of more than 28 millions, and whatever inference may be drawn from these figures, there appears to be a considerable body of public opinion in favour of the movement organised by the committee Presumably, from the prominent support given by the municipalities, that body by no means intends to drop the question of loss inflicted upon property, while emphasising the hardship inflicted by the death or disablement of individuals The memorial prepared for presentation to the late Prime Minister laid stress upon the example of France in paying compensation for all war damage a liability with which that sought to be imposed upon our Government would hardly bear comparison Leaving out the question of what should be done in the remote contingency of a hostile landing upon our shores there is much to be said in the present circumstances in favour of a burden being borne by the State which falls with undeserved inequality upon those who live or happen to own property near to certain parts of our coasts These are persons who might in the existing circumstances be reasonably expected to insure but insurance in itself constitutes a heavy tax to pay for the accident of residence or local interests Many however besides these have suffered from the visits of Zeppelins in districts which for some time were believed to be safe from such dangers either through their remoteness from the coast or through faith in the efficacy of defence measures which only recently have proved successful Many, too have sustained loss or personal injury through the dropping of bombs at random in inland rural districts remote from military stations and from centres of industry connected with the preparation of war material These can hardly be blamed for having neglected to insure against risks the possibility of which they did not realise The matter however, would appear to be one in which weight may well be given to public opinion, particularly if it is voiced by responsible persons who can establish their right to represent their fellows

ROYAL VISIT TO THE WOUNDED—On the afternoon of Christmas Day the King and Queen accompanied by Princess Mary Prince George and Prince Henry visited the King George Hospital in Stamford street, where there are over 1600 wounded soldiers all of whom were personally greeted by one of the Royal party and received at their hands a copy of Queen Mary's Gift Book Queen Alexandra paid a visit to the hospital at Millbank which bears her name

Medical News.

UNIVERSITY OF DUBLIN, TRINITY COLLEGE, SCHOOL OF PHYSIC—At examinations held recently the following candidates were successful —

PRELIMINARY SCIENTIFIC EXAMINATION

Botany and Zoology—Mervyn Edmund McBrien Mary Horan, William Theodore Micks and George Cyril Brereton Robinson
Chemistry—Joseph Eugene Deane (high marks) Eileen Hilda Dowse (high marks) William Theodore Micks Elsie Anna Burns Mervyn Edmund McBrien George Ernest Salisbury Edward Hazlett Fraser Charles John de Vere Shortt Patrick Joseph Healy Frederick Wynand Plenaar Robert Young Crichton Henry Ignatius Emmet Powell Nora Griffith Joseph Hirschmann Mary Horan and Cecil Samuel Wilson.
Physics—George Ernest Salisbury Henry Ignatius Emmet Powell George Cyril Brereton Robinson and David Samuel Thomson

INTERMEDIATE MEDICAL EXAMINATION PART I

Anatomy and Physiology and Histology—John Farnsworth Sheppard Gertrude Rice Gerald Fitzmaurice Hastings, Athanis Blagbo, Jessie Gilbert and Richard Dominic Murphy (Anatomy completing examination)

INTERMEDIATE MEDICAL EXAMINATION PART II

Applied Anatomy and Applied Physiology—William Bruce Briggs M A.

FINAL MEDICAL EXAMINATION PART I

Medical Jurisprudence and Hygiene Materia Medica and Therapeutics Pathology—Harry Lee Parker (high marks) Patrick Bernard Moloney (high marks) Lindley Albertus Stanley Cyril Mitchell James Michael Hill, Ernest Edward Rollins Wilfred Vincent Pellissier William Sweetman Pieter Johannes Swanepoel Percival Atkins Dormer Frederick Gill Joseph Posner Rita Henry Gilbert Marshall Jason Grant Bird Thomas Hugh Robinson McKiernan William Alfred Shannon (omitting Pathology) and Eric Reginald Tivy (omitting Pathology)

FINAL MEDICAL EXAMINATION, PART II

M B Medicin—John Philip Macnamara Clotilda Bayne Berls Joseph Godfrey Bird Thomas Paul Chapman Edward Parker Michiel-Christoffel Dippenaar and John James Keatley
B Ch Surgery—Clotilda Bayne Berls (high marks) Frederick Joseph Smith (high marks) William Frederick Wicht, Patrick Rock Alan Francis Gimbly William Garde Browne John Philip Macnamara Edward Parker Gilbert Marshall Henry Stanley Campion John Troop Westby and Thomas Galvin Roche
B A O Midwifery and Gynæcology—William Petrus Lubbe, Annie Hope Davidson, Mots Grace Jackson, Michiel Christoffel Dippenaar Henry James Rice Sidney Alfred Clark James Arthur William Cullen Fleetwood William Porter Sullivan Thomas Edward Hill Harry Banks Pieter Johannes Swanepoel Alan Glynn Wright William Joseph Hamilton and William James McClinton

DIPLOMA IN PUBLIC HEALTH PART II

George Edward Palmer M R C S L R C I

PRELIMINARY SCIENTIFIC (DENTAL)

Physics—Ethel Maud Merrin

FINAL DENTAL EXAMINATION B Dent Sc

William Burleigh Parr (high marks) Maurice Louis Counihan and Charles Henry Herbert.

ROYAL COLLEGE OF SURGEONS OF ENGLAND—A special meeting of the Council was held on Dec 22nd Sir W Watson Cheyne, the President being in the chair The secretary reported the death of Sir Frederic Eve who was a member of the Council, a former vice president and a former member of the Court of Examiners of the College He was also a lieutenant-colonel in the Royal Army Medical Corps A vote of condolence was passed to be sent to Lady Eve and the members of his family It was stated that the vacancies on the Council occasioned by the death of Sir Frederic Eve would be filled at the meeting of Fellows of the College in July next Mr Bilton Pollard was appointed a member of the Committee of Management The President reported that the term of office of Mr James Ernest Lane on the Court of Examiners would expire in February and that the vacancy so occasioned would be filled at the February meeting of the Council Mr Lane will not apply for re-election

year and there were 59 deaths 6831 persons obtained treatment in the out-patient department The district hospitals of Larnaca, Limasol Famagusta, Paphos, and Kyrenia have continued to carry out their valuable work the total number of in patients during the year was 1278 and of out-patients 12 303 There were only 5 admissions to the leper farm, as against 12 in 1914 and there were 10 deaths The number of cases living in the farm at the close of the year was 92, the lowest on record in the present century

It is recorded that the island has been in use by the military authorities as a convalescent resort There have been constant arrivals and departures of convalescents from Egypt and elsewhere, and the benefit they derived from the salubrious climate has been considerable The absolute mean temperature for the year was 65 48° F as against 65 21° in the previous year The mean rainfall was 16 12 inches as against 23 49 inches during 1914, and an average of 21 89 inches during the last ten years

MILK IN THE REARING OF INFANTS

To the Editor of THE LANCET

SIR —Will any of your readers kindly inform me what should be done in the rearing of infants when milk cannot be taken? The child in question is now 15 months old and refuses milk in any form if pushed she retches

I am, Sir, yours faithfully,

Dec 26th 1916 M D, M R C P

One of Them —We understand that the arrangement of local collectors for Epsom College has not been discontinued In numerous districts, however, the honorary local secretaries are engaged on military duties, and at their request the central office is looking after the local subscriptions New collectors will, we are informed be welcomed in districts where the College is not already represented

Medical Diary for the ensuing Week.

SOCIETIES.

RÖNTGEN SOCIETY Institution of Electrical Engineers Victoria Embankment W C

TUESDAY —8.15 P.M General Meeting Paper —Mr C A Schunk: A Spectroscopic Investigation of Some Sources of Ultra Violet Radiation in Relation to Treatment by Ultra Violet Rays —Dr Batten will describe a Simple Cross-thread Frame for Use in Localisation.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST GRADUATE COLLEGE West London Hospital Hammersmith road W

MONDAY —2 P M Medical and Surgical Clinics X Rays Mr Gray: Operations Mr B Harman: Diseases of the Eye Dr Simson: Diseases of Women

TUESDAY —2 P M Medical and Surgical Clinics X Rays Mr Baldwin: Operations Dr Banks Davis: Diseases of the Throat Nose and Ear Dr Pernet: Diseases of the Skin

WEDNESDAY —10 A.M Dr Saunders Diseases of Children Dr Banks Davis Operations of the Throat Nose and Ear 2 P M Medical and Surgical Clinics X Rays Mr Pardoe Operations Dr Simson Diseases of Women.

THURSDAY —2 P.M Medical and Surgical Clinics X Rays Mr Gray: Operations Mr B Harman: Diseases of the Eye

FRIDAY —10 A M Dr Simson Gynecological Operations 2 P.M. Medical and Surgical Clinics X Rays Mr Baldwin: Operations Dr Banks Davis: Diseases of the Throat, Nose and Ear Dr Pernet: Diseases of the Skin

SATURDAY —10 A.M Dr Saunders Diseases of Children Dr Banks Davis Operations of the Throat Nose and Ear Mr B Harman Eye Operations 2 P M Medical and Surgical Clinics X Rays Mr Pardoe: Operations

NORTH EAST LONDON POST GRADUATE COLLEGE Prince of Wales's General Hospital Tottenham N

MONDAY —Clinics:—10.30 A M Surgical Out patients (Mr E Gillespie) 2.30 P.M., Medical Out patients (Dr T R Whipham): Gynecological Out patients (Dr Banister) 3 P M., Medical In patients (Dr R M Leslie)

TUESDAY —2.30 P M Surgical Operations (Mr Carson) Clinics:—Medical Out patients (Dr A G Auld) Surgical Out patients (Mr Howell Evans) Nose Throat and Ear Out patients (Mr C H Hayton) Radiography (Dr Mercado) 3.30 P M Medical In patients (Dr A J Whiting)

WEDNESDAY —Clinics —2.30 P M Throat Operations (Mr C H Hayton) Children Out patients (Dr T P Whipham): Eye Out patients (Mr J P Brooks) Skin Out patients (Dr H W Barber) 3.30 P M Eye Operations (Mr R P Brooks)

THURSDAY —2.30 P M Gynecological Operations (Dr A. E. Giles) Clinics —Medical Out patients (Dr A J Whiting) Surgical Out patients (Mr Carson) Radiography (Dr Mercado 3 P M., Medical In patients (Dr R M Leslie)

FRIDAY —2.30 P M Surgical Operations (Mr Howell Evans) Clinics —Medical Out patients Dr A G Auld) Surgical Out patients (Mr E Gillespie) Eye Out patients (Mr R P Brooks)

THE THROAT HOSPITAL, Golden square W

MONDAY —8.15 P M Special Demonstration of Selected Cases

TUESDAY — P M Clinical Lecture

ROYAL INSTITUTION OF GREAT BRITAIN Albemarle-street, Piccadilly W

Christmas Lectures:—The Human Machine which All must Work (adapted to a Juvenile Auditory)

TUESDAY —Prof A. Keith Living Pumps

THURSDAY —Prof. A. Keith Living Bellows

SATURDAY —Prof A. Keith: Living Workshops

EDITORIAL NOTICES

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR" and not in any case to any gentleman who may be supposed to be connected with the Editorial staff It is urgently necessary that attention should be given to this notice

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office

Lectures, original articles, and reports should be written on one side of the paper only, *and when accompanied by blocks it is requested that the name of the author, and if possible of the article, should be written on the blocks to facilitate identification*

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor"

Letters relating to the publication, sale, and advertising departments of THE LANCET should be addressed "To the Manager"

We cannot undertake to return MSS not used

Offices 423, STRAND, LONDON, W C

MANAGER'S NOTICES

ALTERATION IN THE PRICE OF "THE LANCET"

INCREASED war-expenses and cost of production necessitate an increase of the price of THE LANCET Commencing with the first issue in the New Year, the price will be 8*d* instead of 6*d* The rates of subscription will remain as revised in October

TO SUBSCRIBERS

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423 Strand London, W C, are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c, should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices

Subscribers, by sending their subscriptions direct to THE LANCET Offices will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Friday mails to all parts of the world.

TO COLONIAL AND FOREIGN SUBSCRIBERS

Subscribers abroad are particularly requested to note the rates of subscriptions given on page 4

The Manager will be pleased to forward copies direct from the Offices to places abroad at the rates shown, whatever be the weight of any of the copies so supplied

METEOROLOGICAL READINGS

(Taken daily at 5.30 a.m. by Stevens's Instruments)

THE LANCET Office Dec. 27th 1916

Date	Rain fall	Solar Radiation in Vacuo	Maximum Temperature	Min Tem.	Wet Bulb	Dry Bulb	Remarks
Dec. 21		[illegible]	50	[illegible]	42	42	Raining
22	0.39	58	46	33	40	41	Overcast
23	0.55	43	49	[illegible]	43	43	Raining
24	0.47	47	45	36	37	[illegible]	Fine
25	—	[illegible]	43	33	[illegible]	35	Raining
26		[illegible]	33	32	32	32	Foggy
27		[illegible]	34	29	31	31	Foggy

Observations which we have been accustomed to give in these Readings" is withheld for the period of the war

The following journals magazines &c., have been received —Proceedings of the Royal Society of Medicine Medical Times British Journal of Dental Science Mill any Surgeon Canadian Practitioner and Review Liverpool Medico-Chirurgical Journal Archives of Radiology and Electrotherapy Annals of Medicine Annales de l'Institut Pasteur Surgery Gynecology and Obstetrics Tropical Diseases Bulletin

Notes, Short Comments, and Answers to Correspondents.

THE MEDICAL PROFESSION IN NORWAY IN 1816

IN a brief but interesting account of the position of medical and surgical practitioners in Norway a hundred years ago Dr M Sögaard gives a reproduction of the first official list of those then authorised to practise in that country The list was issued by the Third Department of the Government and is dated Feb 20th, 1816 The first thing that strikes the reader is its brevity, it contains no more than a hundred names Norway was one of the countries that had the misfortune to back the losers in the Napoleonic wars In 1800 the Danish Government, the predominant partner in the union of Denmark and Norway then existing, committed the Norwegians to the second armed neutrality When this was broken up by the bombardment of Copenhagen, Denmark and Norway supported Napoleon against both England and Sweden in 1807 Rapid economic ruin was the result, and in 1814 Frederick VI of Denmark ceded Norway to Sweden Sweden had previously joined the Allies against Napoleon, the Act of Union made Sweden and Norway equally independent countries, bound together under a single king in an offensive and defensive alliance, which survived till 1905 To return to the year 1816, it may be said that the economic condition of Norway was then deplorable, trade was bad, there was much general poverty, the country was bankrupt The population numbered something over 900,000 souls, yet, as Dr Sögaard proves by quotations from letters written by medical men at the time, many of them found it hard to earn even a livelihood "How I shall get on this year and in the future, writes Chief Surgeon Bencke, of Fredriksvaern, I do not know, my time is stolen from me I am a slave from morning till night My pay is about 64 skillings a day I do not even know the name of civil practice here The skilling was worth nearly a halfpenny Two medical men practised in the town of Stavanger, the senior of these, Landphysicus (or chief district physician) Fangel, writes of his junior, the assistant physician, he is so good in helping the poor that with my whole heart I wish this brave man an old age free from crushing anxiety about his daily bread for the hundred rigsbankdaler he gets as assistant at the hospital barely supply the first necessities of life" The rigsbankdaler or rixdollar of 96 skillings was worth less than four shillings, clearly this assistant was not one of those passing rich on (nearly) twenty pounds a year It is not surprising to read that when Chief Naval Surgeon Heiberg won a large sum of money in the Hamburg lottery of 1814 he hastened to throw up his practice and go into business as a shipowner and wholesale merchant. But in 1828, alas he failed, and had to return to his old profession as regimental surgeon at Horten Here, "separated from his family, he lived in a very small way until he was appointed district doctor at Tönset Clearly the hundred medical men practising in Norway in 1816 had a hard time of it Yet few and ill paid as they were they all had official titles, many of them titles as magnificent as apparently empty of all save credit and renown Most of these titles had to do with surgery, and at least a dozen varieties of surgeons are distinguished in the official list of 1816 Twenty seven of the hundred practitioners it contains are described as "uexaminerede Bataillonschirurger," battalion surgeons who had not presented themselves—or who had not successfully presented themselves?—for examination Seventeen are regimental surgeons, 11 are district surgeons, 6 are candidates in surgery Others are set down as town surgeons, mine surgeons senior surgeons, under surgeons company surgeons, battalion surgeons, divisional surgeons, supernumerary regimental or battalion surgeons, or town and district surgeons The mere physicians are fewer than the surgeons in the list but enjoy a no less copious and perplexing variety of titles Two are described as doctors of medicine though 11 others are mentioned as holding the degree of Dr Med one is a doctor of both medicine and surgery, and 6 are described as 'Land physici," or head physicians of their districts A seventh "Landphysicus" is set down as also a medical candidate, as though not fully qualified, while an eighth is described as "Bergmedicus" (or mine medico) as well as Landphysicus, though the distinction between the capacities of a medicus" and a "physicus is not at once apparent Apart from the doctors of medicine, the "medici,' and the physici, come practitioners of a fourth description those set down in Norwegian as Laeger, or, in English, leeches The leeches existed in various capacities, and are distinguished as leeches practising leeches (what did a leech do if he did not practise?), works leeches, infirmary leeches, private leeches, district leeches, under leeches, and Lazareth leeches Finally, there may be mentioned two practitioners described as medical candidates, comparable in status to the surgical candidates, no doubt One of these medical candidates was also professor of botany at Christiania, the other was also a private leech The Lazareth leech was in practice at Larvik, and is described in the list as a surgical candidate and 'physicus' as well His Lazareth or lazaretto may have been either a fever hospital or a hospital for lepers, but it may be added that special provision was made for leprosy in Norway by the appointment of an "unexamined assistant" at the Stavanger *Radesygehus*, or home for lepers and a "Titular Professor," who was also "chief inspector for leprosy," at Tönsberg Yet another professional title may be mentioned, if only for its grim sincerity At Vinger there practised a "Forhen vaerende Regiments Feltskjaer," or ex regimental field shearer, to give a literal translation of his official title as though the surgery on the field of battle had consisted mainly of immediate amputations

VACCINATION ON THE FOOT

To the Editor of THE LANCET

SIR,—I shall be glad if any of your readers can give me the particulars and results of vaccination on the foot

I am, Sir, yours faithfully,

JAMES MARSH, M B Edin

114 High-street Atherton near Manchester, Dec. 22nd 1916

LETTS'S 'QUIKREF' DIARIES

WE have received some specimens of the diaries published by Messrs Cassell and Co under the above title The list includes books for the office, the study, the counter and the pocket, the sizes varying accordingly, and the bindings from leather through the various forms of cloth to paper The prices are from 1s to 16s An accident insurance coupon accompanies each diary For medical men a diary 7 in by 3¼ in is provided, showing a week at an opening of two pages and ruled with columns for the insertion of visits to 54 patients Bound in cloth, with pencil, the price is 2s 6d, or in French morocco, with tuck and two pockets 5s There are intermediate prices according to style of binding An excellent diary for nurses, price 2s 6d, bound in red leather cloth, contains in addition to the usual almanac, spaces ruled for nurses' reports of the patients' progress and an index The diary shows a week in an opening

At a season for exchanging gifts, when necessary economy and generosity are likely to clash, a diary may solve the difficulty All the above mentioned books are printed on good tough paper and bound with an eye to hard wear

PUBLIC HEALTH AND VITAL STATISTICS OF CYPRUS

ACCORDING to the Cyprus Blue book for the year 1915 the estimated population of the colony is 294,664 In 1915 there were 9141 births, the rate being 31 per 1000, the number of deaths returned was 5473, or 18 5 per 1000 The public health and general sanitary condition of the island have been satisfactory, there was complete immunity from plague and cholera, and no severe quarantine restrictions were imposed The number of cases of typhoid fever, which in Cyprus is generally of a mild type, was 257, as compared with 341 in 1914 On the other hand, 11 cases terminated fatally, as against 8 in the previous year There were 9 cases of diphtheria with 6 deaths but only 6 cases of cerebro spinal meningitis (5 deaths) 6701 vaccinations were performed during the year, and there was no case of small pox

This is the third year of the campaign against malaria initiated by Sir Ronald Ross in 1913 and it is satisfactory that the reduction in the cases of malaria and the spleen rates is considerable There were 2033 cases less than in the previous year, and the spleen rate which was returned at 22 8 per cent in the spring of 1913 has now fallen to 11 5 per cent The reduction is fairly evenly distributed over the island but the greatest decrease is shown in the Larnaca and Famagusta districts, which were also the most malarial, and this is due in great measure to the extensive drainage works that have been carried out The cases of malaria admitted to the six district hospitals in 1915 amounted to 167, of which only 6, or 3 5 per cent, terminated fatally

Further work in improving the Nicosia General Hospital, a Government institution, has been carried out The electric light installation is now complete and an X ray apparatus has been provided Two separate wards for dealing with septic cases in the women's side of the hospital have been built The number of beds remains at 53 A total of 1195 patients received treatment in the wards of the institution during the

Communications, Letters, &c., have been received from—

A—Ardath Tobacco Co Lond Anglo-French Drug Co, Lond Dr J Aikman Guernsey Dr T D Acland Lond Dr E Atkinson Perth Western Australia Mr J G Andrew Glasgow Mr F W Alexander Lond Dr A. Ashkenny Basingstoke Messrs Armour and Co Lond Dr J H Ashworth Cliftonville Mr A. G Attenborough Nottingham

B—Dr E F Buzzard Lond. Mr W Bryce Edinburgh Dr Beatrice Board, Almorn Messrs C Barker and Sons Lond. Mr E Baker Birmingham Messrs P C Burton and Co Lond Messrs W H Bailey and Son Lond Barnwood House Hospital Gloucester Med Supt of Dr W B Bell Liverpool British Medical Association Lond Librarian of Messrs Burroughs Wellcome and Co Lond Dr N Bedwani Tahta Messrs T B Browne Lond Messrs W Browning and Cox Lond Mr G S Bigg Lond Dr T B Broadway Dorchester

C—Dr E M Clarke Truro Mr F J Cruise Baltinglass College of Nursing Lond. Sec of Messrs E Cook and Co Lond. Dr R. Cantemerle Amsterdam Carnegie Endowment for International Peace Washington Sec of Rev Dr Clarke Crossgates

D—Messrs W Dawson and Sons Lond Messrs Davis and Geck Brooklyn Darenth Industrial Colony Dartford Steward of Mr K. H Digby Hong Kong; Capt F Dillon R.A.M C Dr M Dockrell Lond

E—Mr J J Edwards Lond Mr D L Eadie, Edinburgh Messrs Elders and Fyffes Lond Epsom College Lond Sec of

F—Dr W M Fletcher Lond Dr R F Fox Lond Dr G Foy Dublin; Mrs Fenton Torquay Dr D Forsyth Lond.; Miss Froude Fishponds

G—Mr D R D Gazdar Bombay Mr C Geary Lond Prof E Glynn Liverpool Dr M Greenwood Lond Dr L G Glover Lond, Dr W H Gregory Beverley; Dr V Garas Capt R. P Garrow R.A.M C Guy's Hospital Lond. Supt of Dr A Guzman Valladolid

H—Mr E. T Harwood Lond. Messrs Hirschfeld Bros Lond Mrs Hastings Lond. Messrs C J Hewlett and Son Lond Messrs Hough Hoseason and Co Manchester Hudson's Eucenthol Chemical Co Sydney Harrogate Infirmary, Sec of; Capt E R. Hunt R.A.M C Fleet-Surg T D Haighan Shotley Dr C W Hutt Brighton Major C J Healey Clonterf J F Hartz Co Toronto Fleet Surg W E Home R N Mr J H Haverson Carman Canada

I—India Under-Secretary of State for Lond

K—Mrs. W V Knowles Reading Messrs T Kerfoot and Co Bardsley; King Edward VII Welsh National Memorial Association Cardiff Sec. of R A D Messrs C Knight and Co Lond. Capt A Kinder Mr A. Kidd Gravesend Mr E H Kerr Truro

L—Dr P Livingstone Rochdale Lysol Lond Dr G C Low Lond. Dr Lian Alexandria Liverpool Medical Institution, Hon Sec. of London Library Liverpool Corporation Stationery &c., Dept Supt. of Messrs E and S Livingstone Edinburgh Messrs H K Lewis and Co Lond Local Government Board Lond Sec. of London Telephone Service Controller of Messrs Le Brasseur and Oakley Lond London School of Tropical Medicine Sec. of The Lord Chancellor Lond, Capt W A Latham R A.M C Messrs Lee and Nightingale Liverpool Ledbury Guardians, Clerk to the.

M—Dr A. H Miller Manchester Mr J F Mackenzie Edinburgh Messrs Horace Marshall and Son Lond Dr I Moore, Lond Messrs. Chas Moore and Co, Lynn Manchester Royal Infirmary Sec. of Mr F. J Malden Malvern Link Messrs J F Macfarlan and Co Lond Messrs Macmillan and Co Lond. Midland Counties Herald Birmingham Mr W J Matthews Bristol Mrs Milne Aberdeen Capt J Miller R.A.M C (T) Mr J Y W MacAllister Lond Dr J W S Macfie Liverpool Messrs V R Moran and Co, Bexhill-on Sea Dr N Mahfouz, Faggala Dr M Agnes B Murphy Malta Malting's Farm Sanatorium Mayland Matron of Mr J F S Magner Shrewsbury Mysore Government Bangalore Senior Surg of Maruzen Co Tokyo Mr L Maertens Lond.; Dr C R Marshall Newport, N B Mr M J Madden Golden Mr M B Machhar, Mirpur Sakro

N—Newcastle upon Tyne Corporation Medical Supt. of; News vendors Benevolent Institution Lond Sec of National Association for the Prevention of Infant Mortality, Lond. Sec. of National Council for Combating Venereal Diseases Lond., Sec. of

O—Dr C O Gorman Bourne End Capt S J Ormond R.A M C Dr H Oppenheimer Lond.

P—Messrs F E Potter Lond Lieut P Perron S A.M C Pharmaceutical Society of Great Britain Edinburgh Resident Sec of Messrs B K Paul and Co Calcutta The Prescriber Edinburgh Publisher of Dr E Pritchard Lond. Major W Pearson R.A M C Mr C D Pickles Leeds

R—Dr J K Reid Morvern Robert Baker Hospital Sayre U S.A. Supt. of Royal Albert Institution Lancaster Sec. of Messrs Richardson and Co Lond Mr J Rutherford Harrogate Royal Faculty of Physicians and Surgeons Glasgow Librarian of Dr R Rentoul Liverpool Dr R J Rowlette Dublin Mr H M Rainsford Lond Messrs Reynell and Son Lond. Royal Medical Benevolent Fund Lond Dr J Rae Royapuram Medical School, Madras, Supt. of Lieut W Roche R A M C Royal Institution of Gt Britain Lond Röntgen Society Lond Sec. of Mr J Ruffle Ware Mrs Robertson Karnal

S—Mr R H Saunders New York; Messrs Spiers and Pond Lond. Dr A. F Stevens Seaford Mr J P Smith South Lowestoft Dr O Shaw Hove Sunderland County Borough Medical Officer of Health of Mr F W Sears Lond Mr J Seed, Ashton-on Ribble Mrs. Strathearn Dundee Dr W J Sheppard Oxford; Mr P A Steedman Oxford School of Physic, Dublin Registrar of Prof W Stirling, Manchester Mr C R Salisbury Rochester Dr F E Stupnicki Burgdorf Mr E M Swanwick West Hartlepool.

T—Mr J Thin Edinburgh Dr H P Thompson, Crowland Dr J Tatham Old Oxtead True Temperance Association, Lond. Sec of

W—Dr T N Wilson Ibstock Dr W H Whitehouse York Surg C P G Wakeley R N Dr A. P Walters Lybat Dr A C Wilson Formb Mrs Webb-Johnson Clacton-on-Sea; War Office Chief Pos Censor of; Dr N Wood Lon Col C G Watson C M Mr C F Walters Clifton I P Wilde Fa h West Lond Hospital Post Graduate Colleg Mr A G Wilkins Aldersho Mr R H Wilmot, Gretna E W A Walker Oxford.

Letters, each with enclosure, are also acknowledged from—

A.—Surg G L. Attwater R N Capt H L Attwater R A M C Mr E Arnold Lond Mr J B. Adams Lond Dr F Y Abo-Elshehid Esna.

B.—Dr J D Byrd Tarporley Dr W S Bainbridge New York Messrs C Birchall Liverpool; Blackburn and East Lancashire Infirmary Sec of Mrs Brown Lond Messrs Burgoyne Burbidges and Co Lond. Bloomsbury Dispensary Lond Sec. of; Mrs P H Boyden Southsea Bristol University Registrar of; British Drug Houses Co Lond. Mr R W Burkitt Nairobi Dr M Bowlan Lond Messrs Boyveau and Chevillet, Paris

C—Dr R H P Crawford Lond Mr A. F Clarke Lond Dr H Chambers Lond. Dr H J Capon Lond Mr J J Culmer Nassau Dr R Cook Preston Chester Royal Infirmary Sec of Dr E Carmichael Edinburgh

D—Mr S N Dutt Calcutta Dr G Dickson Elgin Dr C Deuntzer Ras Gemsah Lord Derby War Hospital Warrington Dr D Douglas Bellshill; Doctor Hampstead David Lewis Colony Alderley Edge

E—Dr A. M Edge Southport Dr H A Eccles Lond.

F—Messrs H Frowde and Hodder and Stoughton Lond Mr W Falla Jersey Lieut. Col C H S Frankau, R A.M C

G—Mr H T Gray Lond Grant Medical Society Bombay Sec of Lieut J F Gill R A M C Surg P C Gibson R N Mr J Griffiths Cambridge; Capt P A Galpin R A.M.C Dr J Y Graham Perth Dr S Gill, Formby

H.—Mr J Heywood Manchester Dr J O Hollick Knowle Dr G D Henderson Holyoke U S A. Huddersfield Corporation Treas to the Dr E F Higgins Lond Capt. H E Harris R A M C; Mr M Hooper Lond Major T Hunter I M S

I—Messrs Ingleden and Sons Cardiff

J—Dr F H Jacob Nottingham Staff Surg T W Jeffery R.N Mr A R Jennings Lond.

K.—Messrs H S King and Co Lond. Dr D P Kenna, Baltinglass Col W G King I M S Mr R M Kharegat

L.—Dr H E Littledale Charing; Dr A. J B Leckie, Bath Mr I Lisserman Bolton Messrs Le Lacheur and Son Lond Lanark District Asylum Hartwood Clerk to the Mr J Little Melbourne Mr J B Lawford Lond

M.—Dr L Molley Blackpool Dr A MacLaren St Paul U S A. Modern Hospital Publishing Co St Louis Middlesbrough Corporation, Acct to the; Dr A S Morley Lond Dr R Morton Lond Dr F O Madden, Cairo; Sir William Milligan Manchester Mr S G Macdonald Lond Dr A P Mitchell Edinburgh; Dr A L Marshall Lond. Medical Sickness &c. Society Lond Sec of May's Advertising Agency Lond. Mr J Macpherson York

N—Dr P C Nandi Calcutta Messrs Naylor Benzon and Co Lond. National Anti Vaccinatic League Lond Sec of Dr C Niven Liverpool

O—Dr A W Oxford Lond. M H T O'Neill, Belfast Dr Ogle Lond

P—Messrs W Pearson Hull D P Paterson Glasgow Provincial Board of Health Victoria Sec of Dr R Purdon Belfas Mr F G. Power St Helen Dr A. E Porter Reigate Robert Philip Edinburgh Mi M E Parkington Eastbourn Portsmouth Corporation Tres to the Dr A G Phear Lond Mr J Poland Seal Messr W Porteous and Co Glasgow Dr L C P Phillips Gla Port Blair India, Senior Medic Officer of

R.—Dr J W Russell Birmingham Capt A. Reid R A.M C, Mr C Ryall, Lond Royal Alexandr Infirmary Paisley Clerk to the Staff Surg B S Robson R.N Reuter's Telegrams Co Lond Dr A E Russell Lond. Royal Victoria Infirmary Newcastle-on Tyne, Sec. of Mr P B Roth Lond Dr G Rankin, Lond. Mr H G Robinson Edinburgh Mr W Ramsey Melbourne Mr J W Roberts Knayton Dr A. K. T Raw Secunderabad

S—Dr G Steel Manchester Dr W G Smith Dublin Messrs. W B Saunders Co Lond; Dr J J Suckling Margate Mr H B Shaw Lond Sanitas Co Lond. Dr J W Stenhouse, Manchester Mr D N S Smith Bilderston Surrey Education Committee Kingston on Thames Sec. of; Mr F A. Southam Manchester. Messrs W H Smith and Son Lond Messrs Smith and Glasgow Dr R Saundby mingham St Bartholomew Hospital Rochester Sec. of St Bartholomew's Hospital Library Lond Messrs Scheltema and Holkema Amsterdam Surg J F Smith R N

T—Dr J E Thompson Galveston Capt A W Tabuteau, R.A.M.C., Messrs Taraporevala Sons and Co Tottenham Education Committee Sec. of Dr E M Tindal Robertson Lond Mr H D Telford Manchester

U—University College Cork, Sec of

V—Messrs J W Vickers and Co., Lond.

W—Dr G T Westren Lond. Capt J Wotherspoon R.A.M C Dr W W White St John; Messrs W J Wilcox and Co., Lond. Mr A. Wilson Lond. Worcester General Infirmary Sec of Mrs Wood Gorler Messrs Whiteley Lond. Dr J H F Wilgress Folkestone Mr F W Whincup Shrewsbury Lieut Col J W T Walsh I M S Dr F P Weber, Lond.

Y—Dr J Young Lond

37 Times More Powerful than Lithia.

Urodonal

Dissolves and eliminates *URIC ACID.* Purifies the Kidneys and Frees the Articulations Preserves from Arterio-Sclerosis and Obesity.

RHEUMATISM. GOUT. LITHIASIS.

3 teaspoonfuls per day each teaspoonful in a glass of water taken between meals Acute conditions 3 tablespoonfuls per day No Contra indication

DERMATOSIS. NEURALGIA. OXALURIA.

Price 5 - and 12/- per Bottle

COMMUNICATIONS—Academy of Medicine Paris Nov 10th, 1908 Academy of Sciences Paris Dec. 14th 1908

GOLD MEDAL, FRANCO-BRITISH EXHIBITION, 1908.

Highest Awards Nancy, 1909. Quito, 1909.

Adopted by the FRENCH ADMIRALTY (Ministere de Marine) with the approval of the BOARD OF HEALTH.

JUBOL.

"Re-education" of the Intestine

Constipation Enteritis Hæmorrhoids, Indigestion, Skin Blemishes, &c., &c.

Dose 1 to 3 tablets every night on retiring

PRICE 5 - per box

GLOBEOL.

Powerful Blood Tonic.

Anæmia Nervous Exhaustion Neurasthenia, General Debility Tuberculosis Convalescence, &c.

Acute Conditions 8 pills daily with midday meal

Chronic Conditions 4 pills daily with midday meal.

PRICE 5 - per bottle

JUBOLITOIRES.

Scientific Suppositories.

ANTI HÆMORRHAGIC SEDATIVE DECONGESTING

Hæmorrhoids Pectitis, Anal Fistula, Abscesses, and all unhealthy conditions of the Recto-anal Tissues.

One suppository to be introduced into rectum morning and night after motion of the bowels.

PRICE 5 - per box

PAGEOL.

Powerful Urinary Antiseptic

Gonorrhœa, Cystitis, Prostatitis Catarrh of the Bladder, Renal Tuberculosis Hypertrophy of the Prostate and all Diseases affecting the Urinary System.

Acute Conditions 16 capsules daily

Chronic Conditions 6 capsules daily

PRICE 5 - and 11/- per box.

GYRALDOSE.

Powerful Antiseptic for Local Gynæcological Use

RELIABLE NON IRRITATING NON STAINING

Leucorrhœa, Metritis Salpingo-ovaritis, Vaginal Discharges &c.

Prophylactic and Therapeutic Use One teaspoonful to a quart of warm water once or twice daily *Curative Purposes* Two to three teaspoonfuls to a quart of hot water twice daily or oftener if necessary

PRICE 4 - per box

VAMIANINE.

New Scientific Preparation

for the Treatment of

Syphilis Chronic Skin Affections Psoriasis Acne Eczema Erythema, &c. &c.

Dose 4 Pills daily or more if necessary

PRICE 11 - per bottle.

FANDORINE.

Internal Treatment for Women's Diseases

Metrorrhagia, Dysmenorrhœa, Pregnancy Lactation Irregularities, Pains Abnormalities, &c.

Acute Conditions 15 to 20 tablets per day at regular interval as required *Chronic Conditions* 8 tablets per day between meals

Price 5/- and 11/- per bottle

FILUDINE.

Employed in all Liver Disorders.

Malaria Diabetes Cirrhosis, Sluggish Liver Tuberculosis &c.

Acute Conditions 2 tablets three or four times daily before meals. *Chronic Conditions* 2 tablets twice or thrice daily before meals.

PRICE 11 - per bottle

SINUBERASE. Complete Remedy for Intestinal Disorders

Enteritis Dysentery Diarrhœa Cholera, Typhoid Infectious Disease Dyspepsia, Constipation &c.

Acute Conditions 12 tablets daily at the commencement of meals *Chronic Conditions* 4 to 6 tablets daily

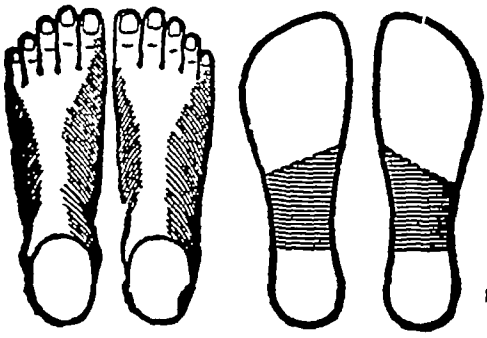
PRICE 5 - per bottle

All the above Remedies are prepared exclusively by J. L. CHATELAIN, 2 & 2 bis rue de Valenciennes, Paris

Can be obtained from all Chemists and Stores or direct from the Sole British and Colonial Agents— *Heppells* Pharmacists & Foreign Chemists, 164, Piccadilly, LONDON, W

Trial Supplies and Full Descriptive Literature gladly sent on application to HEPPELLS *at the above Address*

DOWIE & MARSHALL, THE EARLIEST HYGIENIC BOOTMAKERS.



REGISTERED AT STATIONERS' HALL
G.P O Telephone—No 9015 CENTRAL.

455, WEST STRAND, CHARING CROSS, LONDON.

[ESTABLISHED 1824]

The instructions of the Profession intelligently carried out Illustrated Catalogue gratis

In addition to the Departments for Ladies & Gentlemen, special attention is given to provide properly shaped shoes for **Children**, parcels of which can be forwarded on approval to any part of the country Please send outlines of the foot

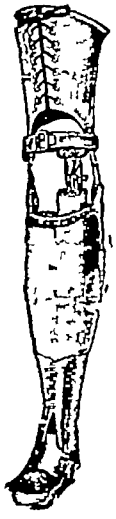
DOWIE & MARSHALL have had great experience in the shoeing treatment of weak ankles and flat feet

DOWIE & MARSHALL,
455, WEST STRAND CHARING CROSS LONDON

CATALOGUE of SECONDHAND SURGICAL INSTRUMENTS, OSTEOLOGY, MICROSCOPES, POST FREE.

Students' Half Sets of Osteology, £3 3s Articulated Skeletons, £7 10s and £10 10s Secondhand Surgical Instruments, Osteology and Microscopes bought Articulated Skeletons lent on hire A large selection of Secondhand Microscopes by all the leading makers always in stock.

MILLIKIN & LAWLEY, 165, STRAND, LONDON. Telephone: City 1765



W. R. Grossmith's ARTIFICIAL
Legs, Arms, Hands, and Eyes.

Established in Fleet Street 1760

Prize Medals LONDON, PARIS DUBLIN, &c

Accurate Fitting Guaranteed.

PERFECT COMFORT NATURAL MOVEMENT. EXTREME LIGHTNESS.

"Mr Grossmith's house has been highly reputed for upwards of a century for the manufacture of well-devised and useful artificial limbs and they are in every way worthy of commendation."—THE LANCET

"Mr Grossmith's Artificial Legs Hands and Eyes are most beautiful and perfect imitations of the natural."—MEDICAL TIMES AND GAZETTE

"The examples I inspected were beautifully perfect models of the natural and the mechanical ingenuity displayed in the artificial reproduction of legs arms and hands was amazing —THE CHEMIST AND DRUGGIST

Illustrated Catalogue, Price List, and Instructions for Measurement Post Free of—

W. R. GROSSMITH, 110, Strand, LONDON
Telephone—CITY 5918

Certificate with each Thermometer.

THERMOMETERS

The Medical Profession APPRECIATE the importance of a RELIABLE Clinical Thermometer EXPERIENCE the SATISFACTION of using one GUARANTEED CORRECT at 3/3 each, or six for 18/- Cash, Post Free. State whether LENS Front or PLAIN Front required.

JOHN TIMPSON & CO., Ltd., 104, Golden Lane, LONDON, E.C.
Sole Agents for JOHNSON & JOHNSON